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ABSTRACT

This orientation course in educational media for teachers in secondary schools consists of nine illustrated lectures. Lecture topics are: (1) effective media use; (2) educational media for teaching and learning; (3) books and other printed media; (4) transparencies and the overhead projector; (5) slides, slide-sound programs, filmstrips, and films; (6) sound recordings and audio equipment; (7) the use of video in education; (8) the use of media in practice; and (9) planning media services for effective media use in schools. References are included for each lecture. (GL)

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ORIENTATION COURSE

IN

EDUCATIONAL MEDIA

SECONDARY SCHOOLS

1984

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EDUCATIONAL MEDIA

Index : Lectures

1. Effective media use
2. Educational media for teaching and learning
3. Not included. Applicable to primary schools only.
4. Books and other printed media
5. Transparencies and the overhead projector
6. Slides, slide-sound programmes, filmstrips and films
7. Sound recordings and audio equipment
8. The use of video in education
9. The use of media in practice
10. Planning media services for effective media use in schools

EFFECTIVE MEDIA USE 1

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L.B
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TRANSVAALSE ONDERWYSDEPARTEMENT
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ORIENTATION COURSE: EDUCATIONAL MEDIA
1984

ORIENTATION COURSE : EDUCATIONAL MEDIA, 1984

EFFECTIVE USE OF MEDIA

(Summary of slide-sound and transparency
presentation)

Mr J A Bierman
Senior Adviser, Audio-visual
Education Service

1. TOMORROW'S WORLD FACING TODAY'S CHILDREN

(Slide-sound programme)

Rapid change caused by technology poses a problem for the modern educator. The world in which the pupils of today are living and learning will have changed by the time they become adults. Pupils have to be educated with this in mind.

New knowledge becomes available at a staggering and ever increasing rate. Pupils must be given access to this vast store of knowledge by teaching them to communicate in new ways. Reading and writing alone will be insufficient. New communication skills such as computer literacy and visual literacy have to be taught. Our teaching methods have to keep pace with these new challenges and teachers can no longer rely on the blackboard and textbook as their only teaching media.

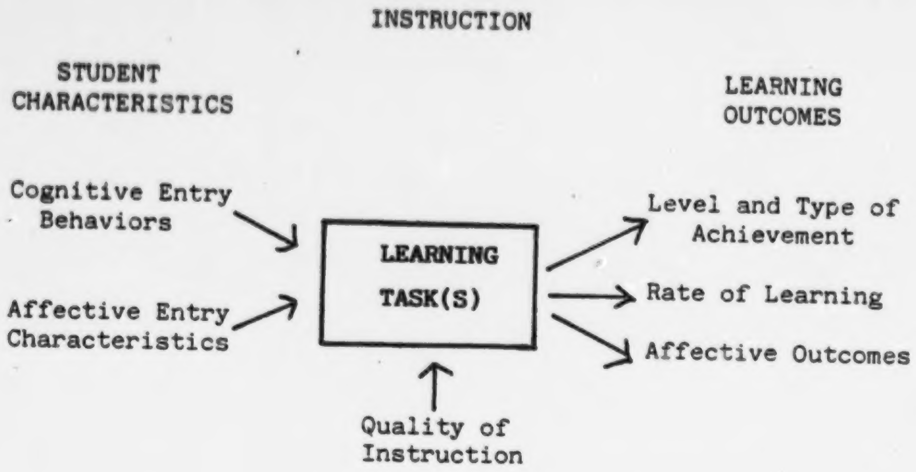
2. LEARNING AND THE USE OF MEDIA

(Transparency presentation)

2.1 Bloom's theory on school learning

2.1.1 A Learning unit (learning task)

This is a unit which forms part of a course of study e.g. a topic in the syllabus. Such a unit consists of related elements which have to be mastered by the pupil step by step. He should not progress to the next element before mastering the previous one. It is called mastery learning.


INSTRUCTION
STUDENT CHARACTERISTICS
LEARNING OUTCOMES
Cognitive Entry Behaviors
Affective Entry Characteristics
LEARNING TASK(S)
Quality of Instruction
Level and Type of Achievement
Rate of Learning
Affective Outcomes

2.1.2 Cognitive entry behaviours

This refers to the knowledge, skills and aptitudes which are essential for mastering a new element in the learning task. Where there is a large measure of variation in the cognitive entry behaviours of pupils, a large variation in learning outcomes can be expected.

Specific cognitive entry behaviour refers to knowledge such as concept of numbers and vocabulary.

General cognitive entry behaviour refers to reading comprehension, general intelligence, ability to concentrate, study-skill and the ability to utilise the time available for learning.

Intelligence alone does not contribute as much to the variation of learning outcomes as is generally assumed. The other variables mentioned, I.Q. excluded, are responsible, according to Bloom, for 36 to 69 percent of the variation in learning outcomes.

If students are normally distributed with respect to aptitude, but the kind and quality of instruction and learning time allowed are made appropropriate to the characteristics and needs of each learner, the majority of students will achieve mastery of the subject. (1976:4).

2.1.3 Affective entry characteristics

Bloom defines it as the level of motivation of a pupil. A pupil's interpretation of his own ability has significant effect on learning outcomes. Repeated occurrence of success or failure can have an important positive or negative effect on the pupil's measure of success in coping with the learning task.

A pupil will have a subject-related affect which will vary from one subject to the next, a school-related affect which will reflect his feelings related to school, the teachers and peer groups and an academic self-concept by which means he will seek in himself reasons for success or failure. According to Bloom's research affective entry characteristics contribute 25% of the variation in learning outcome.

The responsibility of the school in this regard is clear. If the school can succeed in creating experiences of success for a pupil, especially during the first four years of schooling, it can make a significant difference in the achievement pattern of pupils.

2.1.4 Quality of instruction

According to Bloom physical qualities of the learning environment do not play such an important role as the control and management of the learning activities.

The components of quality of instruction are

- cues or directions provided to the learner
- the participation of the learner in the learning activity
- the reinforcement which the learner secures in some relation to the learning
- a feedback and corrective system.

2.1.5 Learning time

Bloom investigated the difference in time taken by the quickest and slowest learners in a group to attain a given criterion. As he progressed to learning tasks (2 and 3) the difference in time taken by the pupils to master the learning tasks grew dramatically shorter.

He ascribes this to the mastery learning approach mentioned in 2.1.1. If the pupils all master learning task 1 before starting on learning task 2, their prior knowledge (cognitive entry behaviour) is so much better. No pupil starts with a disadvantage; because they have succeeded in learning task 1 their affective entry characteristics are also more favourable and they are more strongly motivated.

Bloom's theory emphasizes the importance of the first years in school. The earlier some error occurs in the learning history of a child, the larger the cumulative effect in later learning experiences of the same kind. (De Wet, 1981 : 77 - 91).

2.2 The role played by media in effective learning

2.2.1 The learning task and media

Presenting the learning content by means of media forces the teacher to analyse it carefully, break it down into steps or elements and arrange them in logical order. This structures the content which is very important for effective learning. The use of media also facilitates repetition which improves retention.

2.2.2 Cognitive entry behaviour

Media enables the teacher to present abstract and remote concepts in a more concrete and immediate form. This relates it to previous knowledge which helps the pupil to master it more easily. Because the content can be repeated it makes mastery learning possible. The tempo can be adjusted to ensure that each pupil has enough time to master the content.

2.2.3 Affective entry characteristics

Colour, movement, realism, sound effects etc. have a stronger impact, which interests the pupil and helps concentration.

The pupil is more successful in mastering the content which improves his attitude and confidence.

2.2.4 Quality of instruction

(a) Media is more effective in providing cues and directions

(b) Media makes it possible for pupils to participate in various ways e.g. worksheets, discussions, pupils using media themselves for report-back or lectures to their fellow pupils, group work and individualised learning.

(c) Reinforcement is enhanced by media use because it sets the teacher free to give attention to individual problems.

(d) Feedback and correction is facilitated by effective media use because pupils are able to check their own responses immediately after making them.

3. RETENTION, FORGETTING AND THE ROLE OF MEDIA

(Slide-sound presentation)

3.1 The human memory

According to De Wet (1981 : 246) three memory stores can be distinguished, namely the sensory memory (SM), short term memory (STM) and the long term memory (LTM). This does not indicate three separate structures but rather three separate ways in which the same structure, the memory, functions.

3.1.1 The Sensory Memory (SM)

Information reaches the sensory memory via the senses. In the SM certain information is selected while the rest is ignored. Of the mass of sensory perceptions, most are lost. Information remains in the SM for a fraction of a second only before fading. Only a small portion of the information in the SM is transferre to the short term memory, (an important fact to bear in mind when designing software).

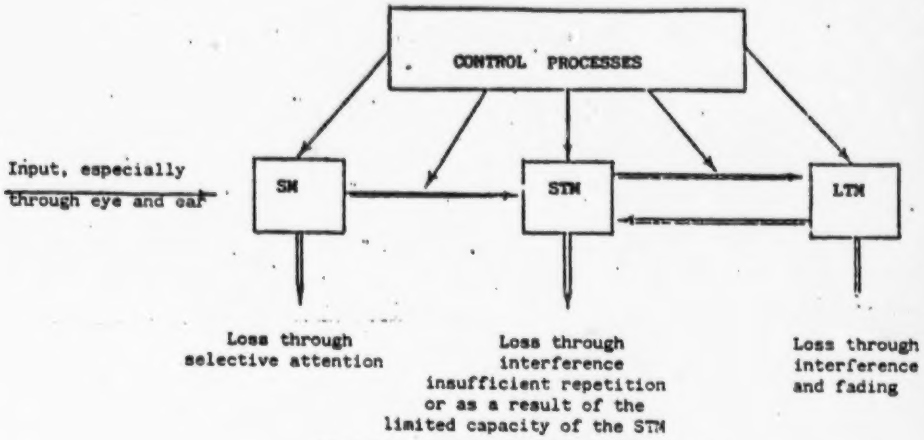
3.1.2 The Short Term Memory (STM)

Only information to which a pupil pays attention is transferred to the short term memory. The rest is lost. Attention, in other words, is selective. The STM is the working memory. Information reaches it not only from SM, but also from the LTM when, for instance, a pupil wishes to recall something already stored in the latter.

A very significant fact to bear in mind about the STM is its limited capacity. Only a certain number of units or 'chunks' of information can be handled there at a given time. The numbers 191019141939 presents a large number of detail which overloads the STM. Structure it to longer but fewer chunks and it becomes manageable e.g. the three dates 1910, 1914 and 1939. The STM can cope with a maximum of about seven such chunks. This illustrates the importance of structuring information.

3.1.3 The Long Term Memory (LTM)

In contrast to the STM, the LTM is an almost limitless store of information. The STM must work with information or lose it. The LTM can store it for lengthy periods. When such information is required it is recalled from the STM where it can be used or manipulated.


CONTROL PROCESSES
Input, especially through eye and ear
SM
STM
LTM
Loss through selective attention
Loss through interference insufficient repetition or as a result of the limited capacity of the STM
Loss through interference and fading

SCHEMATIC REPRESENTATION OF THE MEMORY

De Wet et. al. 1981 : 246.

3.1.4 Losing information or 'forgetting'

The SM, STM and LTM differ regarding the ways in which information is lost or forgotten. From the SM it is lost because of lack of attention to it. From the STM it is lost when nothing is done with it and new incoming information replaces it or because the STM is overloaded with more information than it can handle. From the LTM it is lost through interference by other information or when it fades due to the passage of time.

N.B. The better information is coded, i.e. structured, the longer it will remain in the LTM. The level or depth of processing in the LTM is determined by

- meaningfulness of the learning content
- the amount of time available for processing
- the amount of attention paid
- the information presented in a context or structure known to the pupil.

Summary:

Pupils forget when they do not pay attention, or when the information is poorly processed or stored (unstructured or out of context). They also forget when they have problems recalling information from the LTM, (on-the-tip-of-my-tongue phenomenon), or when, with the passage of time memory traces fade. Lastly they tend to forget when other information, usually of a similar nature, interferes with the stored information and they confuse facts.

3.2 The use of media and the memory (Transparency presentation)

If a teacher wishes to present information in such a way that pupils remember, he should

- manage to fix their attention on learning content in such a way that other details do not interfere. Furthermore he should hold their attention for the duration of the lesson. If he fails to do so the sensory memory will simply not transfer whatever content he is presenting to the short term memory;
- organise and structure the information in order not to overload the STM with a mass of details;
- repeat the information to give the STM a chance to process it. This is called coding and by this process it is transferred to the LTM;
- present the information in a context, in order to make it meaningful;
- present it at a slow enough tempo so that the limited capacity of the STM is not overloaded.

This is where the importance of suitable, effectively used media becomes manifest, e.g.

Attention: The colour, movement, apparent realism, immediacy which media make possible gets and holds the attention. The variety of visual images also tends to hold the attention as opposed to the monotony of a verbal lecture or a long printed text.

Structure:

Verbal presentation alone cannot structure information nearly as effectively as, for example, a few well prepared transparencies. Graphic symbols, graphs, diagrams, summaries of main ideas, all highlighted with effective colours, lend structure.

Repetition.

Software can be used over and over again, programmes can be interrupted for discussion or repeated. The tempo can be adapted to the ability of the pupils.

Coding.

Sometimes a visual presentation or a sound can be worth a thousand words. Try for instance to convey the concept 'jersey cow' by means of a verbal presentation.

Context

Every medium creates a context for the information it contains. Think of a good film as context for learning history or "A day in the life of a doctor", presented visually for vocabulary building.

Meaningfulness

Describing the human skeleton verbally would have very little effect. A visual presentation in the form of drawings will be much more effective. It becomes really meaningful when pupils are given a working model and are allowed to dismantle and assemble it.

N.B. The aim of this course is not to convince you that verbal teaching with the aid of the blackboard, notes and the text book is inferior or incorrect. It will always form a large part of your teaching activities and for many objectives, it remains the most effective way of teaching. What we are trying to point out is that verbalism and the textbook should not totally dominate our teaching. For many of our teaching objectives there are media ideally suited to capture our pupils' attention and imagination and to facilitate learning.

4. LEFT BRAIN, RIGHT BRAIN AND MEDIA

(Slide-sound presentaiton)

Neuro-psychologists such as M S Gazzaniga, Robert Nebes and J E Bogen ("The Human Brain", 1977) and Maya Pines ("The Brain-changers", 1973) refer to the work of Nobel prize winner, Dr R W Sperry, who discovered that the two hemispheres of the brain differ significantly in their functions.

The E.T.A. conference held in York, England in 1984 with the theme "Education in the Video age" pointed out some important implications that these findings have for education. (Breytenbach and Briel, 1984).

- The two hemispheres can function independently of each other.
- Are stimulated by different stimuli.
- The left hemisphere specialises in language, logical thinking and motor skills.
- The right hemisphere does not have the ability to deal with language but only with visual and spatial concepts.
- Because the dominant means of communication is verbal, i.e. through language, the left hemisphere is dominant in most cases.
- Many vocations and professions calling for exceptional skills such as surgery, engineering, the fine arts, music, etc. are to a large extent dependent on the right hemisphere.
- The corpus callosum which connects the two hemispheres makes communication possible between the two hemispheres. (It consists of approximately 200 million spinal connections).

> "The main theme to emerge from the foregoing facts is that there appears to be two modes of thinking, verbal and non-verbal, represented rather separately in the left and right hemispheres respectively, and that our educational system, as well as science in general, tends to neglect the non-verbal form of intellect. What it comes down to is that modern society discriminates against the right hemisphere" (Gazzaniga, Nebes & Bogen, 1977 : 145).

By allowing verbal instruction to dominate our teaching we deny our pupils the opportunity of developing the unique possibilities of their right brain hemispheres and of achieving their full learning potential. The visual images, colour, forms and music which can be presented by media stimulate the right hemisphere and aid pupils in realising their full potential.

When both hemispheres are stimulated, replicas of visual images are stored in the right hemisphere. Interaction between the two hemispheres increases retention, holds attention and increases learning efficiency. (Breytenbach & Briel, 1984).

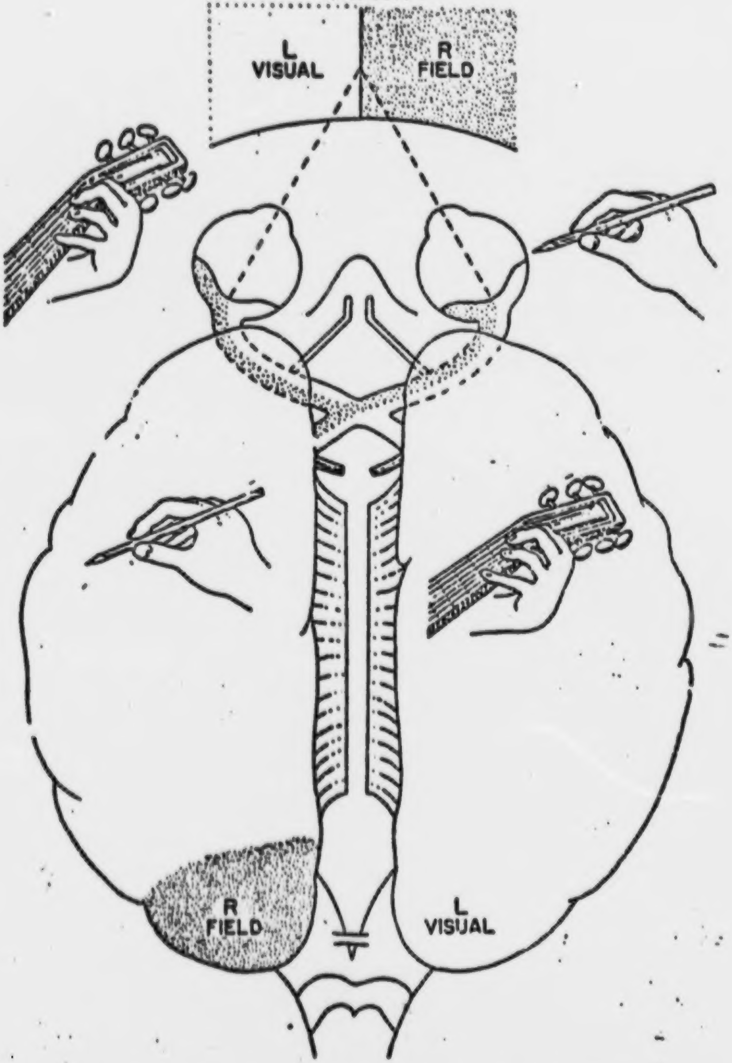


FIGURE 7.1. A schematic outline of the brain as seen from above, to suggest the complementary dominance of the cerebral hemispheres for various tasks

Bogen : in Withrock et al : 1977, based on work by R W Sperry.

5. SYMBOLS AND SYMBOL SYSTEMS

(Transparency presentation)

We rely to a very great extent on symbols in our teaching because we are seldom able to bring the actual object into the classroom. According to Levie and Dickey (Briel 1983) we use a symbol or sign to represent the actual object (the referent). The name Voortrekker Monument is a symbol referring to the well-known landmark in Pretoria. A photograph or picture would be another symbol for the same referent. Because symbols play such an important role in our teaching it would be appropriate to have a closer look at them here. Schramm classifies symbols as digital, iconic and analogue.

5.1 Digital symbols

These are letters of the alphabet, numerals, typographic signs, music notes, morse code, signal flags etc. They bear no physical resemblance to their referents. They are codes and one has to know the code to be able to interpret the symbols.

5.2 Iconic symbols

Here we find some resemblance between the referent and its symbol. Examples are photographs, pictures, sculpture, maps etc. Iconic symbols are often very "dense" i.e. loaded with potential visual experiences and meanings. Where the digital symbols expect the learner to focus on linear experience, iconic symbols invite the learner to wander about to select interesting visual experience. Everything is presented at once and not in linear sequence.

5.3 Analogue symbols

These symbols are found in spoken language (voice quality, tone, timbre) in dance and music where emotional and affective meaning is expressed etc.

5.4 Digital symbols are over-emphasised in teaching

It is obvious that where verbalism and textbook teaching dominates, we communicate mostly by digital symbols and stimulate only the left hemisphere and neglect the unique possibilities of the right hemisphere with its holistic, visual and spatial way of looking at things.

5.5 Visual literacy

Briel (1983) feels that although we spend much time in teaching pupils to read and write we pay little attention to teaching iconic and analogue code systems. Pupils must learn to use these codes just as they learn to use digital codes. To learn this they must be taught "visual literacy".

BIBLIOGRAPHY

1. BLOOM B S 1976 : Human characteristics and school learning. New York : McGraw-Hill.

2. BREYTENBACH L & BRIEL R H 1984 : Report on the ETA-conference with the theme "Education in the video age" held at York, 1 - 12 April 1984. SABC publication 2/84-

3. BRIEL R H 1983 : Media-eienskappe as 'n faktor in media seleksie. Unpublished Doctoral thesis. R A U.

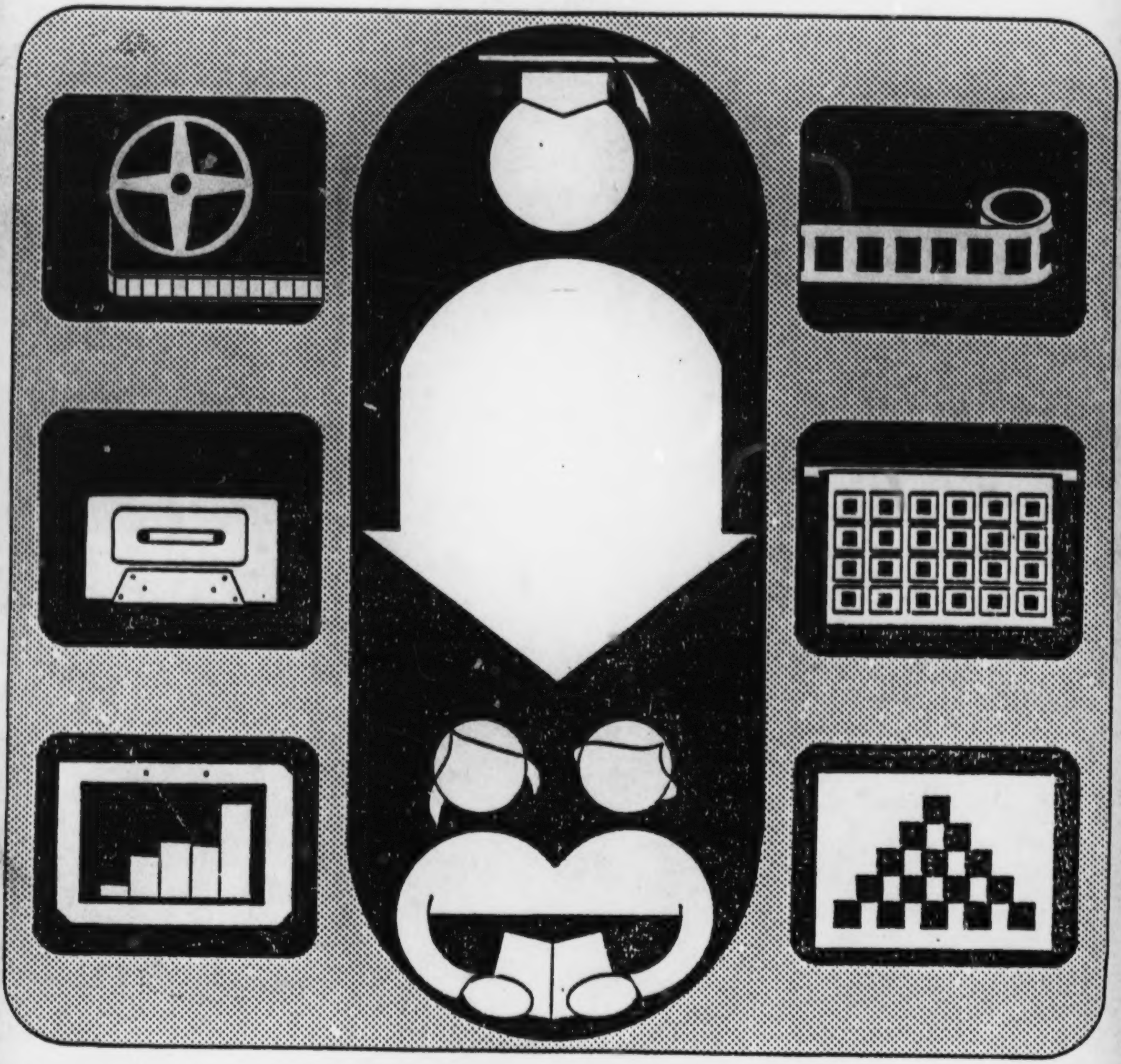
4. DE WET J J MONTEITH L L de R VAN DER WESTHUIZEN G J 1981 : Opvoedende leer. Butterworth.

5. PINES M 1974 : The brain changers : Scientists and the new mind control : Allan Lane.

6. WITTROCK M C BEATTY J & BOGEN J E 1977 : The human brain. Prentice Hall.

EDUCATIONAL MEDIA FOR TEACHING AND LEARNING

2



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1984

2. EDUCATIONAL MEDIA FOR TEACHING AND LEARNING

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Media centre
Education Media Service

AIM

To make course members aware of the value of educational media and media skills when integrated into teaching and learning in the educational programme

1. INTRODUCTION, 1
2. EDUCATIONAL MEDIA, 1
    2.1 Types of media, 1
    2.2 Characteristics of educational media, 2
    2.3 Functions of educational media, 3
    2.4 Teaching media and learning media, 5
        2.4.1 Teaching media, 5
        2.4.2 Learning media, 5
    2.5 From the concrete to the abstract, 7
3. SYSTEMATIC PLANNING FOR EFFECTIVE MEDIA USE IN THE CLASSROOM, 7
    3.1 Media and pupil potential, 7
    3.2 Media and the formulation of objectives, 8
    3.3 Media selection, 9
        3.3.1 Media selection in accordance with pupil potential, 9
        3.3.2 Media selection in accordance with subject content, 10
        3.3.3 Media selection in accordance with objectives, 10
        3.3.4 Media selection in accordance with lesson development, 11
        3.3.5 Other aspects influencing media selection, 12
            3.3.5.1 Conditions at the school, 12
            3.3.5.2 The attitude of the teacher, 13
        3.3.6 Models for media selection, 13
    3.4 Procedure for the use of media, 13
        3.4.1 Preview, 13
        3.4.2 Preparing the classroom, 14
        3.4.3 Orientating the pupils, 14
    3.5 Pupil involvement, 14
    3.6 Evaluating educational media usage, 15
4. MEDIA SKILLS, 17
    4.1 Why are media skills essential?, 18
    4.2 What are media skills?, 18
    4.3 Media skills in the teaching programme, 18
5. SUMMARY, 19
6. WORKSHOP, 21
7. BIBLIOGRAPHY, 21

1. INTRODUCTION

What does reality or the partial reality of the child's world appear like and what will it look like in future? Technological development already dominates modern reality.

Because man is in direct contact with reality, it is imperative that the teacher brings reality into the classroom. Because this is not always practically possible, the teacher is compelled to convert reality into images, in most cases as the spoken word. Use of such images is not always didactically accountable. It is therefore often necessary to use another alternative by which reality is represented in a more concrete way.

Educational technology has opened up new possibilities for teaching. These are embodied in a variety of educational media which may be used in teaching and learning as an alternative for representing "remote" reality to the pupils (Van Dyk, 1982 : 103).

2. EDUCATIONAL MEDIA

The term medium (plural : media) means "intervening substance" and refers to anything conveying information between a sender and a receiver.

Media qualifies as educational media if it has the attribute of conveying information as an aid in teaching or learning.

2.1 Types of educational media

The wide variety of media available for the use of teachers and pupils in our schools is summarised in the diagram below. (See Diagram 1, p 2).

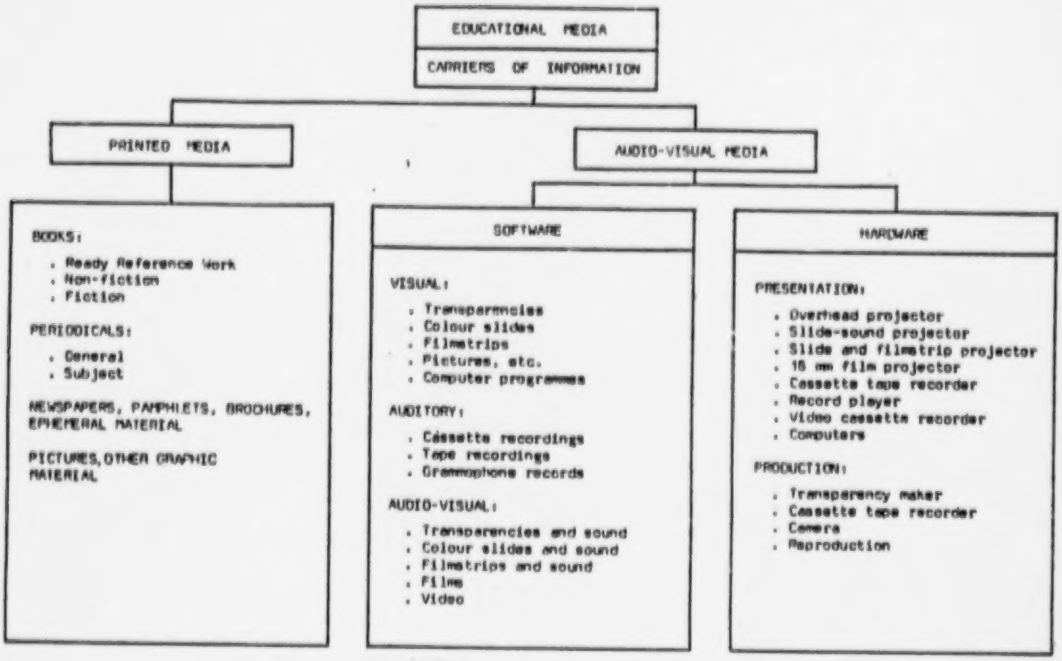

EDUCATIONAL MEDIA
CARRIERS OF INFORMATION
PRINTED MEDIA
AUDIO-VISUAL MEDIA
BOOKS:
. Ready Reference Work
. Non-fiction
. Fiction
PERIODICALS:
. General
. Subject
NEWSPAPERS, PAMPHLETS, BROCHURES, EPHEMERAL MATERIAL
PICTURES, OTHER GRAPHIC MATERIAL
SOFTWARE
VISUAL:
. Transparencies
. Colour slides
. Filmstrips
. Pictures, etc.
. Computer programmes
AUDITORY:
. Cassette recordings
. Tape recordings
. Grammophone records
AUDIO-VISUAL:
. Transparencies and sound
. Colour slides and sound
. Filmstrips and sound
. Films
. Video
HARDWARE
PRESENTATION:
. Overhead projector
. Slide-sound projector
. Slide and filmstrip projector
. 16 mm film projector
. Cassette tape recorder
. Record player
. Video cassette recorder
. Computers
PRODUCTION:
. Transparency maker
. Cassette tape recorder
. Camera
. Reproduction

Diagram 1 (Van Wyk, 1979 : 5)

2.2 Characteristics of educational media

Three characteristics of media make them suitable for use in education to enable a teacher to accomplish teaching tasks that would otherwise be difficult or impossible. These characteristics also influence the way in which each medium is used.

The three characteristics and their advantages are:

CHARACTERISTICS	ADVANTAGES FOR THE TEACHER
Fixation	Objects or events can be recorded by media so that the book, image or sound can be stored to be used when needed for teaching and learning.
Manipulation	Events can be manipulated in many ways by using, for example, slow motion, accelerated action, reduction in size, etc.

Distribution	Media can be made available in more than one place at the same time as well as for repeated use, e.g. television programmes, slides, books, etc.

(Gerlach & Ely, 1980 : 244 - 247)

2.3 Functions of educational media

Media have various functions. The teacher's task is to determine which functions can be performed by media in teaching and learning. To do this a medium must conform to certain conditions. According to Rowntree (1974 : 114) and others, a medium should have the potential to stimulate and draw a response from pupils. These basic conditions imply functions, of which the following are the most important for teaching and learning.

Engage the student's motivation	Stimulating use of educational media in conjunction with the subject content, can contribute to awakening a natural inquisitiveness which, in turn, leads to motivation and effort.
Recall earlier learning	If media recalls knowledge already mastered, it stimulates the pupil into wanting to know more about the unknown (new knowledge)
Provide new learning stimuli	Media . provide the pupil with a meaningful message because by using clear examples a medium explains concepts to the pupil from his own point of view; . emphasize vital issues; . draw attention to important distinctions and generalizations; . enable the pupil to draw his own conclusions from new learning content without the teacher conveying it verbally;

	• provide a varied means of repeating main ideas; • encourage pupils to approach new information, situations, ideas and events from an already established frame of reference, and • enable the teacher to adjust the intensity of learning so that the individual is neither bored nor overwhelmed but is always challenged to aspire to mastering the learning content.
Stimulate critical thinking	The media must enable the pupil to form ideas and to use them by • contributing to them, • applying, • testing, • refuting, • modifying and • combining them. In general this means that the pupil himself extends his learning, rather than taking it 'off-the-peg'.
Create opportunities for feedback	After learning has taken place media may be used for feedback by pupils by • using the same media employed by the teacher in the lesson to indicate that he has mastered the content; • borrowing software from the media centre to convey knowledge he possesses to his fellow pupils; and • by producing software to give his own representation of newly acquired knowledge, e.g. - language (cassette recordings) - graphics (transparencies) - audio-visual media (slides, slide-sound programmes, etc).
Encourage the practice, application and evaluation of knowledge and skills	Some media, e.g. computer programmes, programmed sound cassettes and slide-sound programmes, enable the pupil to • convey learning content and to master skills by repetition;

	• react to cues in a programme in order to solve problems; • compare his own answers with a model; • evaluate his own efforts; A programme is compiled in such a way that, at its conclusion, the pupil can assess (a) what content has been mastered, (b) what has caused him difficulty, and (c) what he couldn't understand (Bryce & Stewart, 1983 : 21 - 28); and • do remedial exercises.

2.4 Teaching media and learning media

2.4.1 Teaching media

Teaching media relates to the action of the teacher. He should carefully consider the advantages and disadvantages of each medium to ensure that it can be effectively integrated with the lesson without distracting from its unity and progress.

The teacher is well aware that the use of media is intended to expedite the lesson he is presenting.

It is important to employ a medium in such a way that the pupil will also have access to it and learn to use it. In this way it is given a new function.

2.4.2 Learning media

This term indicates the pupil's involvement with a medium. In using learning media the pupils are guided by the teacher, and, in the process, he involves them actively because the learning content becomes more tangible and immediate for them. Active pupil involvement is a prerequisite for effective learning. The effectiveness of a learning medium will depend on whether the teacher effectively plans and integrates it with the lesson or merely uses it at random.

From the above it is evident that the use of learning media is aimed mainly at helping pupils, master the lesson content and making it their own. This means that pupils must learn to comprehend reality (Van Dyk, 1982 : 104 - 5).

Each of the senses has a function in learning. Learning occurs mostly through a combination of senses. Individual differences between pupils should also be taken into account.

Research has shown that retention of what has been learnt is related to sensory perception.

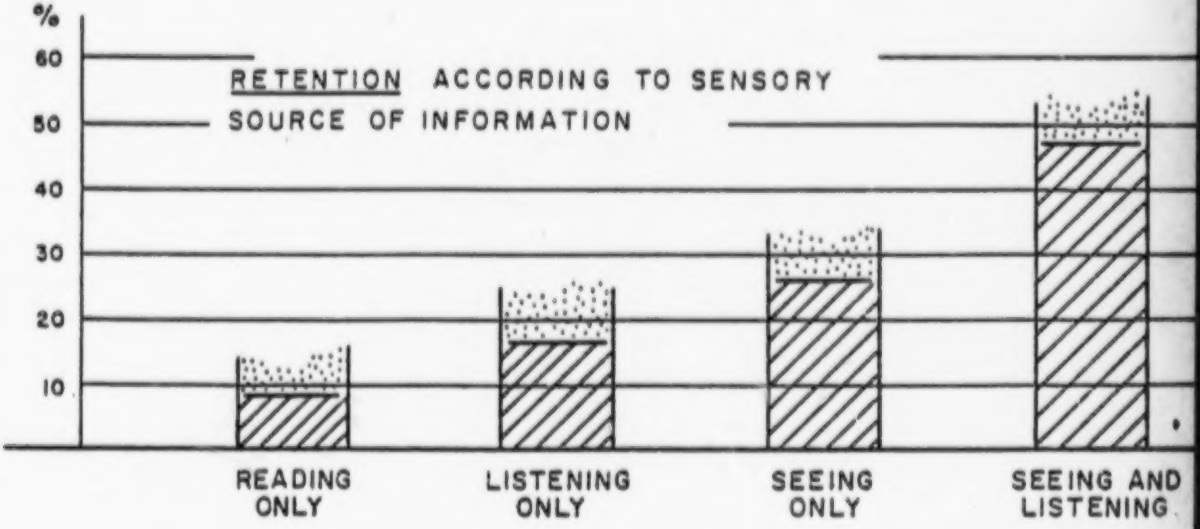


Diagram 2 (Wilkinson, 1971 : 3)

It should be emphasised that although we distinguish between the two concepts, teaching media and learning media, they cannot be seen as separate entities in the teaching and learning activities. "Learning is guided by instruction" (Heinich, Molenda & Russell, 1982 : 11).

2.5 From the concrete to the abstract

There are similarities and differences between the spoken word and the actual image or sound. The actual object or an image, or its sound is obviously a better rendition of reality than descriptive words can ever be. By using a concrete image (media) the teacher is enabled to progress towards the abstract word. This principle remains valid as long as the pupil is learning. Whenever he is confronted with new concepts it is meaningful to introduce the pupil to these concepts through media and then when the concepts have been mastered to conclude with media. The pupil not merely sees reality but speaks about it. When a lesson is being presented on the sea horse for instance, the pupils are dependent on oral description of the subject. As soon as interesting slides of the sea horse are integrated with the lesson the pupils will immediately have a better understanding of, e.g. its shape, colouring, habitat and way of living. The concept sea horse will be prominent especially if the teacher takes into account that pupils may never have seen a real sea horse and might even confuse it with a horse.

3. SYSTEMATIC PLANNING FOR EFFECTIVE USE OF MEDIA IN THE CLASSROOM

Thorough planning is a prerequisite for effective use of media in a lesson. The teacher should identify aspects of the lesson that cannot be taught by verbal description alone in order to use media to help the pupils in their understanding of the content (Louw, Möller & Mentz, 1983 : 37). In the planning stage the following steps should be considered.

3.1 Media and pupil potential

Children differ with regard to their personal potential, aptitude and interests and each child is unique. Differentiation in education rests on this generally accepted principle and recognises each child's individuality. The unique potential of each child should be provided for in the school curriculum and subject content as well as classroom practice. The use of a variety of educational media can contribute much to realising the potential of each pupil. For this reason there must be a relationship between the potential of the pupil, the content of the learning media and the method of presentation.

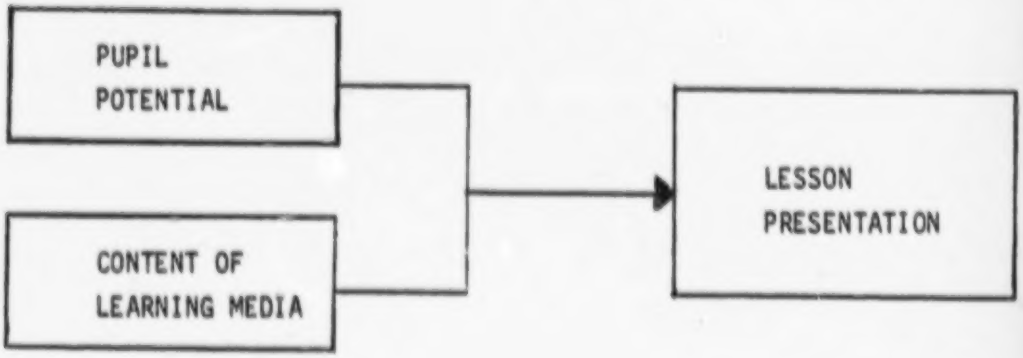


Diagram 3

The teacher must be aware of the pupils' existing frame of reference and keep it in mind when preparing his lesson. The teacher should also ensure that the pupils possess the required media skills in order to enable them to use media.

3.2 Media and the formulation of objectives

Well considered objectives are essential when planning for effective use of media. Objectives cannot be formulated in isolation because the level of maturity of the pupils, the subject content and available time, as well as the personality and teaching style of the teacher, all have to be taken into account.

3.3 Media selection

For the resourceful teacher the choice of a medium and its application should not pose too great a problem. Some teachers regard the first available medium as a sort of magic potion that must deliver good results - often to their disillusionment. Media must be carefully selected in order to lead the pupil to explore his world.

Selecting the correct medium or media in a lesson requires thorough planning. "No single medium is likely to have properties that make it best for all purposes." (Gerlach & Ely, 1980 : 250).

In addition to the aspects mentioned in paragraph 2 the following should also be taken into account.

3.3.1 Media selection in accordance with pupil potential

The teacher should select media keeping in mind the perceptive ability of his pupils and the fact that each pupil is unique in this respect. Answers to the following questions should be considered:

- Is the level of difficulty of the vocabulary within the pupils' ability?
- Are the listening and reading levels of the media suitable?
- Are pupils able to cope with the degree of difficulty of the illustrations?
- Do pupils have the necessary skills to handle the media? (Heinich, *et al.*, 1982 : 44).

Often when the knowledge of the pupils is inadequate it is the teacher's task to augment it. Specific media must be selected and integrated into the lesson to supply the required background. If, for example, a lesson on wool is being planned for a target group of city children, the teacher has to take into account that many of the pupils might never have seen a sheep before. Consequently he will have to supply background on sheep and sheepfarming by using media, e.g. a slide programme. In this way an abstract problematic concept becomes concrete to them.

3.3.2 Selection of media in accordance with subject content

The unique nature and content of every subject dictates the media selected to teach it. A tape recorder will be ideal for teaching languages while diagrams are more suited to teaching Mathematics. In Natural Science models are useful to illustrate objects which are difficult or impossible to bring into the classroom.

3.3.3 Media selection in accordance with objectives

According to Gerlach & Ely (1980 : 240) a basic rule for media selection is: "A medium of instruction must be selected on the basis of its potential for implementing a stated objective". Other authors and researchers on educational media agree, e.g. Kemp, 1980 : 43; Heinich, *et al.*, 1982 : 44; Lizamore, 1978 : 143; Gagne, 1971 : 72 and Rowntree, 1974 : 123.

The wording of the formulated objective gives an indication of which media could be selected for integration into the lesson. (First column, diagram 4).

OBJECTIVES	MEDIA									
	Actual object	Model	Blackboard	Picture Illustrations	Printed media	Transparencies	Slides and filmstrips	Slide-sound programmes	Sound recordings	Video/T V
At the end of the period the pupils should be able to describe the composition of blood.										

Diagram 4

The most suitable medium or media are chosen from those available. "Does the information contain the appropriate information and will the information included in the medium stimulate the activities necessary to achieve the stated objectives?" (Heinich, *et al.*, 1982 : 44, adapted).

3.3.4 Media selection in accordance with lesson development

The teacher must always keep in mind the extent or number of different media employed in a lesson. Too many media may be confusing to the pupil and the lack of media may defeat the very object of the lesson. Carefully selected media can activate the minds of pupils and lead to understanding which will greatly contribute to achieving the objectives of the lesson.

Certain media are more effective for certain teaching methods than others. Also note that media can be selected for specific phases in the lesson. For instance while pictures may be best suited to introducing a certain lesson, a different medium may be better suited to conveying new information.

The visually concrete aspect of media should not occupy too much of the pupils'time during the lesson because they risk clinging to that which is concrete too long instead of being led to abstract thinking. Dale illustrates this in diagram 5 (page 12).

Media should be integrated as smoothly as possible into the lesson, by, for instance, making sure that the media are ready for use before the lesson commences. Much of the impact of a lesson is lost if it has to be interrupted to find media.

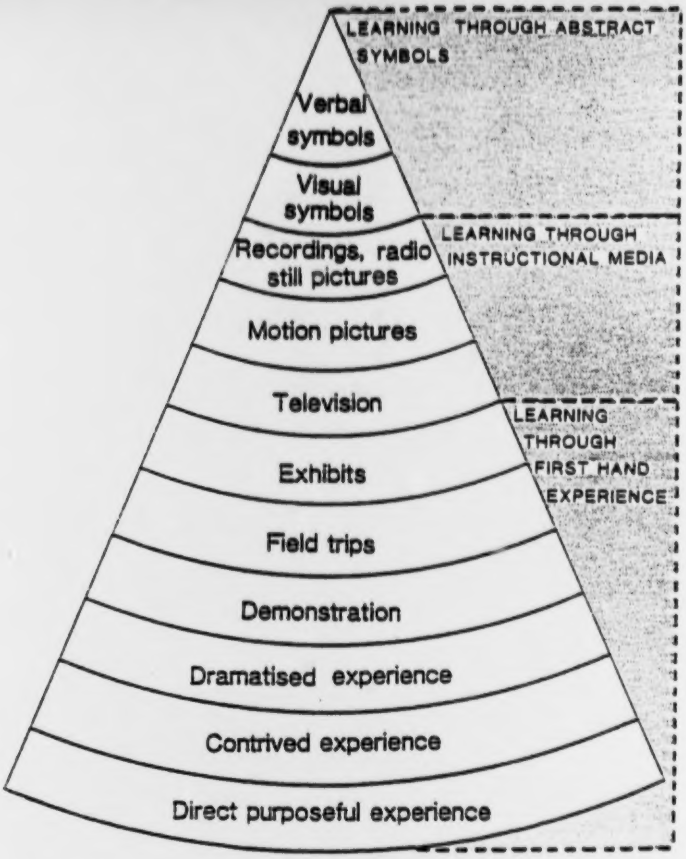

LEARNING THROUGH ABSTRACT SYMBOLS
Verbal symbols
Visual symbols
LEARNING THROUGH INSTRUCTIONAL MEDIA
Recordings, radio still pictures
Motion pictures
Television
LEARNING THROUGH FIRST HAND EXPERIENCE
Exhibits
Field trips
Demonstration
Dramatised experience
Contrived experience
Direct purposeful experience

Diagram 5 (Heinich, *et al*, 1982 : 12);
(Smith & Nagel, 1972 : 6)

3.3.5 Other aspects influencing media selection

3.3.5.1 Conditions at the school

- the availability of media
- the correct audio-visual hardware and whether it is in working order
- physical conditions such as darkening facilities, size of classrooms, availability of power points
- availability of funds for purchasing media
- cost of individual programmes, etc.

3.3.5.2 The attitude of the teacher

- his skill in handling media;
- his knowledge of media, enabling him to realise the value of a specific medium for a specific purpose
- his ability to organize pupils in learning experiences with media, resulting in meaningful individual achievement

3.3.6 Models for media selection

Flow charts in which the way to a specific medium is indicated by means of questions is one way of selecting media. An example of such a model appears in Kemp (1980 : 45 - 46). According to Briel (1980 : 4) however, a model which accommodates all the variables in a teaching situation has yet to be designed (if at all possible).

3.4 Procedures for the use of media

All the steps mentioned above lead to practical implementation of media. There are certain procedures for the use of media, however, that ensure maximal learning. These the teacher should note.

3.4.1 Preview

It is imperative that the content of a programme selected according to an objective for a certain group of pupils be scrutinised so that the lesson can be planned accordingly. This will allow the teacher to decide beforehand if sensitive or obscure parts should be discussed beforehand or whether, as result of irrelevant material, the programme should be adapted. The sequence in which a pupil experiences a programme directly affects his achievement.

3.4.2 Preparation of the classroom

The facilities required for effective image and sound projection should be considered.

3.4.3 Orientation of pupils

The achievement level reached by pupils in a programme largely depends on the way they have been orientated for the presentation of the programme.

Seen from an educational point of view, the functions mentioned in 2.3 will form part of any good presentation.

3.5 Pupil involvement

Pupil involvement ensures the most effective learning. Some media lend themselves to student participation more than others. Examples are:

- Still images lead to pupil response which is easier to assess than that produced by films or video. A pupil might read the captions in filmstrips and expand on them, discuss the contents of the picture, or be referred to some other medium, while the image remains fixed on the screen. This advantage is limited in the case of filmstrips supplied with synchronised commentary unless the tempo is adapted.
- Pupils can also react orally to film or video. Oral reaction by pupils during a filmshow can improve learning, e.g. answers to leading questions or spontaneous verbal opinions expressed on the content.
- Psychomotor skills are also learnt more effectively if pupils can practise the skills while watching the demonstration on the screen.

Worksheets to be completed during the presentation also improve learning, provided that the assignment is not so demanding that it draws pupils' attention away from looking at the film or video.

It is important that pupils react, whether orally or in writing, or in some other way, as soon as possible after the presentation of the programme. Proof of success is of great motivational value especially to below average pupils (Heinich, *et al.*, 1982 : 53).

3.6 Evaluating educational media usage

Evaluation or control is an on-going process that occurs before, during and after a lesson. "The purpose of evaluation is to collect and analyse information that can be used for rational educational decision making" (Fjällbrant & Stevenson, 1978 : 35).

Sometimes teachers are convinced that they have presented a lesson very successfully because THEY themselves enjoyed using the media and were interested in the content. Later, when evaluating, they are surprised to find that pupil response is not at all as good as they expected (Armstrong, Denton & Savage, 1978 : 17).

For this reason particularly, it is essential that criteria for the evaluation of successful integration of media into the lesson are set. Some questions that may guide a teacher to set such criteria for himself are the following:

- Has the use of educational media contributed to the achievement of objectives?
- How many pupils benefited from the use of educational media in the lesson?

  Are there pupils who did not reach the expected achievement level and, if so, what are the reasons?

  Has the choice of medium been commensurate with the pupils' level of ability?

Would another medium not have been more suitable?

Did the programme interest the pupils or were they bored?

Did the programme make too many demands on the pupils?

Should the programme be altered before being used again?

Could the pupils cope with the questions and/or assignments given during the lesoon?

- Was the medium used at the right stage in the lesson?

  Did the educational media contribute towards putting the teaching time at the teacher's disposal to the best possible use?

  Did the presentation of the programme consume more time than it was worth?

  Was the presentation of the lesson affected in any way by the teacher's and/or pupil's ability (or lack of it) in handling the hardware or software? "Each teacher is accountable for the progress or lack of progress in his or her class" (Heinich, *et al.*, 1982 : 335).

- Were there physical conditions or circumstances which prevented effective use of the educational media?

What remedial action, new strategies or changes are needed to remedy the weaknesses in order to improve the educational effectiveness of media "Evaluation is not the end of instruction, it is the starting point of the next cycle ... for effective use of ... media" (Heinich, *et al.*, 1982 : 57).

If teachers find that

(1) media have helped them to achieve their objectives,

(2) suited the learning styles of the pupils, and

(3) contributed to the quality of learning,

they can continue with confidence in using media purposefully for teaching and learning activities (adapted from Armstrong, *et al.*, 1978 : 16).

4. MEDIA SKILLS

4.1 Why are media skills essential?

Teachers often use media in lessons without ascertaining whether the pupils are able to interpret the visual or auditory elements of the teaching or learning media correctly. Teachers are often unaware that all the pupils in a class do not give the same interpretation to words, images or sounds. The intended message of the teacher's medium is very often lost because all the pupils do not have the required media skills for successful interpretation of the message presented.

For this reason the teacher should concentrate on those media skills needed by pupils to ensure successful learning. Waite (1975 : 8 - 9) says, "Skill-learning requires teaching, coaching, practice. If you want to learn the skills of using media, then you cannot just let people find them out ... They need to be taught, to be helped to acquire the skills ... Simply turning them loose with a bag of questions and a lot of media will not do it."

Another reason why there exists such a need for media skills is the vast number of media which are increasingly becoming part of modern society. Consequently the need arises to help pupils to put this profusion of media to use critically, and, to be able to use a medium critically, implies that pupils should have the necessary media skills. If a teacher ensures that pupils learn the required skills to use media successfully in school, he will also be preparing them for the future when they will have left school. Jarolimek (1963 : 33) says that a teacher's greatest contribution to education would be perhaps, to teach pupils skills: "Perhaps much of what the pupil learns ... will wear thin or become obsolete but skills learned in school continue to be functional indefinitely, or as long as they are needed. Skills are the most permanent of learnings."

4.2 What are media skills?

Walker & Montgomery (1977 : 11) and Herring (1978 : 18 - 19) define the term media skills, as those basic skills relevant to the finding and gathering of information in media and putting that information to effective use afterwards. These skills comprise the expected ability to extract information and ideas from media and to process them into new knowledge which is then available for further or later use: "Media skills enable pupils to learn from what they read or look at or listen to." (Herring, 1978 : 21).

4.3 Media skills in the teaching programme

During periods for Media User Guidance pupils are given the opportunity to learn and master media skills progressively and systematically. These skills are summarised in diagram 6.

- listening, visual observation, reading
    - interpreting
    - selecting
    - systematising
- presenting information and ideas
    - graphic/visual
    - oral/auditory
    - written
- documentation of sources

Diagram *6 (T.E.D. 1979, as adopted)*

The media skills acquired during the periods for Media User Guidance, can also be applied in the classroom when media are being used for teaching and learning. Direct liaison between the class/subject teacher and the media teacher (media centre) will therefore improve the climate for developing media skills.

One of the aims of the teaching programme of the media teacher is:

> To produce a pupil/student who is an independent and effective user of media (Walker & Montgomery, 1977 : 25)

Some of the skills categories included in this aim are

- identifying and locating/finding information in media after a search;
- listening to, visual observation and/or reading of information;
- selecting information entails the skills of interpreting; distinguising, comparing and choosing information;
- utilizing and applying information from media; and
- reproducing information by using existing media during the report back and/or by creating new programmes for a report back, thereby presenting existing information in a new format.

It ought to be the aim of the subject/class teacher to contribute towards the application of these skills in the classroom.

5. SUMMARY

In the modern world of which they form a part children must be quipped to use the variety of media, among which are educational media effectively. The school has, besides the family, a very important function in this respect. It must integrate media with learning and teaching, taking into account the differentiated personal potential of each individual pupil. In addition, the use of media can improve communication between teacher and pupil to such an extent that optimal learning becomes possible. The teacher should therefore take note of the value of educational media for the attainment of lesson objectives. All educational media cannot be used in one lesson. This means that media should be carefully selected in order to achieve specific lesson objectives. Whether objectives have been achieved or not is determined by doing careful evaluation after each lesson.

By effectively using educational media, it is possible to improve differentiation in teaching and learning, which can bring about a change of emphasis in education (see diagram 7).

FROM	TO
Teaching of large groups	Teaching smaller groups and individuals
Memorisation	Self-discovery
Teaching by telling	Teaching by guiding
Media as a mere aid	Media as a learning tool integrated with teaching and learning

Diagram *7 (T.E.D., 1980 : 11 as adapted)*

In order to effect this change of emphasis, the function and use of the media centre become indispensable and it is seen nowadays as "a source and a force for educational excellence" (Davies, 1974 : 2).

In the media centre pupils are equipped, among other things, to use media effectively because they learn essential media skills which should also be applied in the classroom. "The drive towards literacy in our schools is not paralelled by a concern for media literacy. We need to help pupils interpret and use (media)" (Ely, 1977 : 216).

If all teachers in a school, guided by a functioning Media Committee (refer T.E.D. 1978 : 514 - 515) strive to use media in teaching and learning purposefully and to see that pupils learn media skills during lessons, this will raise the teaching standard of the educational programme. "The professional educator must keep faith with the purpose of education - the improvement of instruction" (Davies, 1979 : 313).

6. WORKSHOP

See annexure.

7. BIBLIOGRAPHY

ARMSTRONG, D G, DENTON, J J & SVANGE, T V 1978 Instructional skills handbook. Englewood Cliffs: Educational Technology Publications.

BRIEL, R M 1980 Die keuse van media vir 'n les. *RANDSE AFRIKAANSE UNIVERSITEIT* : *Instructa 80* *Simposium vir Onderwystegnologie*. Durban: Butterworth.

BRUNER, J S 1966 Toward a theory of instruction. Cambridge: Harvard University.

BRYCE, C F A & STEWART, A M 1983 Integrating computer-based and media-based learning. *Educational Media International*, 1983, no 4 : 21 - 28.

CAVERT, C E 1974 An approach to the design of mediated instruction. Washington: Association for Educational Communications and Technology.

DAVIES, R A 1974 The school library media centre : A force for educational excellence. 2nd ed. New York: Bowker.

DAVIES, R A 1979 The school library media program : Instructional force for excellence. 3rd ed. New York: Bowker.

ELY, D P 1977 Current trends in AV Technology. LIBRARY ASSOCIATION OF AUSTRALIA : Libraries in society : Proceedings of the 19th biennial conference held in Tasmania, August 1977. Hobart: The Conference Committee.

FJÄLLBRANT, N & STEVENSON, M 1978 User education in libraries. London: Clive Bingley.

GAGNE, R M 1971 Learning theory, educational media, and individualized instruction TICKTON, S G ed. To improve learning. New York: Bowker.

GERLACH, V S & ELY, D P 1980 Teaching and media : A systematic approach. 2nd ed. New Jersey: Prentice-Hall.

HEINICH, R, MOLENDA, M & RUSSELL, J D 1982 Instructional media and the new technologies of instruction. New York: Wiley.

HERRING, J E 1976 Teaching library skills in schools. London: NPER Publishing Company.

IRVING, A 1978 Teach them to learn : Educating library users in schools. Education Libraries Bulletin, Summer 1978, v 21, no 2 : 31.

JAROLIMEK, J 1963 The psychology of skill development. CARPENTER, H M : Skill development in the social studies. Washington, D C: National Council for the Social Studies. (Thirty Third Yearbook).

JOUBERT, C J 1982 Algemene Skoolvoorligting. Johannesburg: McGraw-Hill.

KNAPPER, C K 1980 Evaluating instructional technology. London: Wiley.

KEMP, J E 1980 Planning and producing audiovisual materials. 4th ed. New York: Harper.

LIZAMORE, J 1978 Selection of media. RANDSE AFRIKAANSE UNIVERSITEIT : Instructa 78. Simposium vir Onderwystegnologie. Durban: Butterworth.

LOUW, W J, MÖLLER, A K & MENTZ, H C 1983 Verbandlegging in die didaktiese pedagogiek. Pretoria: Academica.

LUBANS, J ed. 1978 Progress in educating the library user. New York: Bowker.

MACQUARIE UNIVERSITY Centre for Advancement of Teaching 1978 Using non-book resources in the primary school. Sydney: Macquarie University. (Minicourse M 30).

MEYER, R 1977 Look! Hear! : Audiovisual aids. Sydney: Curriculum Resources International.

OXFORD, J & MOORE, D M 1979 Can teachers learn to cope with our visual society. Audiovisual Instruction, May 1979, v 24, no 5 : 20.

ROWNTREE, D 1974 Educational technology in curriculum development. London: Harper & Row.

SMITH, H R & NAGEL, T S 1972 Instructional media in the learning process. Ohio: Charles E Merrill.

TRANSVAAL EDUCATION DEPARTMENT Transvaal Education Library and Audio-visual Ancillary Service 1979 Programme for media user guidance in the school media centre. Pretoria: T E D.

TRANSVAALSE ONDERWYSDEPARTEMENT / TRANSVAAL EDUCATION DEPARTMENT. 1978 Handleiding vir algemene skoolorganisasie / Manual for general school organisation. Pretoria: T O D / T E D.

TRANSVAALSE ONDERWYSDEPARTEMENT / TRANSVAAL EDUCATION DEPARTMENT 1980 Streekkursus vir media-onderwysers / Regional course for media teachers. Effektiewe mediagebruik / Effective use of media. Pretoria: T O D / T E D.

VAN DYK, J N 1982 'n Didakties-pedagogiese perspektief op die gebruik van onderwysmedia TRANSVAALSE ONDERWYDEPARTEMENT Onderwyskollege Pretoria Didaktiese pedagogiek vir vierdejaar studente aan die Onderwyskollege Pretoria. Pretoria: Onderwyskollege Pretoria.

VAN WYK, C F M 1979 Planning the media programme of the school TRANSVAAL EDUCATION DEPARTMENT Symposium on organisation, management and leadership for newly appointed principals of primary schools, 17 - 20 September 1979. Pretoria: T E D.

WAITE, C & COLEBURN, M A eds. 1975 Not by books alone : A symposium on library resources in schools. Oxford: School Library Association.

WALKER, H T & MONTGOMERY, P K 1977 Teaching media skills : An instructional program for elementary and middle school students. Colorado: Libraries Unlimited.

WILKINSON, C E 1971 Educational media and you. Toronto: GLC Educational Materials and Services.

YULE, R M & STEYN, P J N 1982 Onderrig- en leerhulpmiddels. Johannesburg: McGraw-Hill.

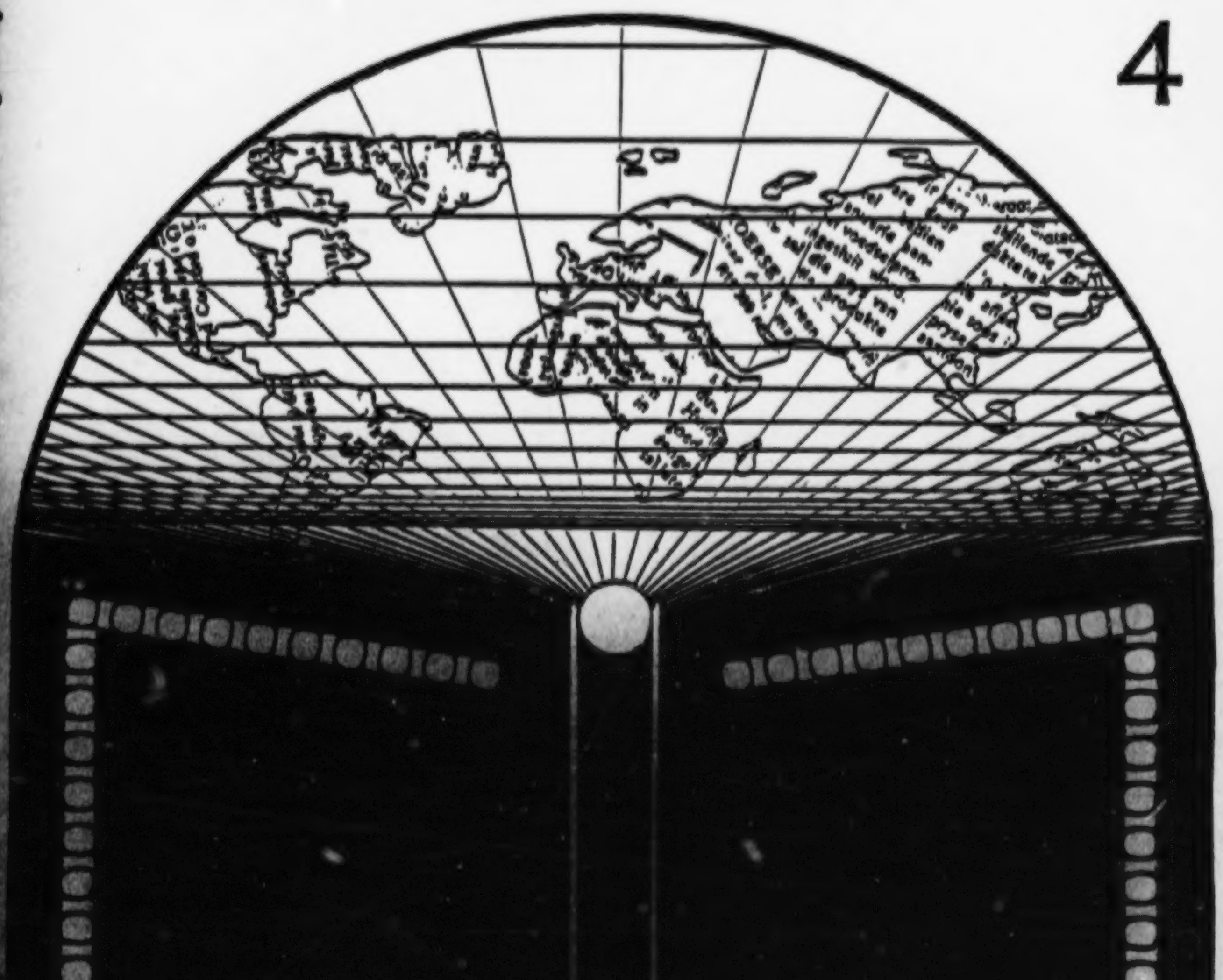
ANNEXURE (Lecture 2)

WORKSHOP

OBJECTIVES	FUNCTIONS OF MEDIA							EDUCATIONAL MEDIA											SKILLS
	Motivate	Recall existing knowledge	Convey new learning content	Stimulate critical thought	Feedback of knowledge	Practise/remedial work/application	Evaluation	Actual object	Model	Blackboard	Pictures/illustrations	Printed media	Transparencies	Slides/filmstrips	Slide-sound programmes	Sound recordings	Video/T V	Computer programmes	
At the end of the period pupils should be able to describe the nature and animal life of the Kruger National Park after it has been represented to them																			

BOOKS AND OTHER PRINTED MEDIA

4



TRANSVAALSE ONDERWYSDEPARTEMENT
TRANSVAAL EDUCATION DEPARTMENT

ORIËNTERINGSKURSUS: ONDERWYSMEDIA
ORIENTATION COURSE: EDUCATIONAL MEDIA
1984

4. BOOKS AND OTHER PRINTED MEDIA

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OBJECTIVES

After the lecture you should be able to

- appreciate the contribution of printed media to teaching
- apply criteria in evaluating non-fiction
- use printed media to form attitudes
- use printed media to develop skills

CONTENTS

1. Introduction , 1
2. Books are sources of information , 3
    2.1 Evaluating non-fiction for children , 3
        2.1.1 Criteria , 3
        2.1.2 Encyclopaedias , 4
    2.2 Practical work , 5
        2.2.1 Encyclopaedias , 5
        2.2.2 Non-fiction , 5
3. Books form attitudes , 6
    3.1 Fiction , 6
    3.2 Practical work , 8
        3.2.1 Demonstration , 8
        3.2.2 Group work , 8
4. Books are used to develop skills , 9
5. Conclusion , 9
6. Source list , 10
Annexures I to IV

IT'S A STRIKING NEW DEVELOPMENT IN INFORMATION STORAGE WITH INSTANT RETRIEVAL
SALES

Libr. Ass. Rec., 81 (2)
February 1979

1. INTRODUCTION

In a world offering a variety of media, books are still easy to handle, generally available and reasonably cheap. Books are also more durable than most other media; partly because a well-bound book can endure considerable punishment and neglect; partly because the contents often not only retain, but even increase their value through many years; in contrast audio-visual media have tremendous immediate impact, but both contents and form normally have a short life.

> *"The range, influence and effect of the Orwellian non-book society needed - yes, a book to announce it. Nearly forty years later Dr Christopher Evans, in* ***The Mighty Micro****, foresaw the beginning of the end of the book within ten years from the date on which he was writing. Half that period has now gone by, yet more books than ever are being sold and borrowed...*
>
> *The book is not collectable without reason. It is cheap. Before a thousand brickbats are hurled in my direction, stop and think: it really is! Just think in terms of entertainment, knowledge and convenience what the expenditure of a pound will produce. Pit it against almost anything else in terms of entertainment or consumption and the value holds. It is marvellously portable and can be taken anywhere including places where much of the new technology is inadmissible (eg aeroplanes); and it is extremely flexible. You can flick backwards and forwards to establish a meaning or piece of knowledge at a rate that would make a tape recorder giddy!*
>
> *The book is private. We live in a world where noise daily intrudes on our thinking and working, not to mention our sleep. One television set, one radio or hi-fi, and 100 to 500 people's attention and concentration can be destroyed. 500 people reading different books even in the same space will not trespass on each other for a second. In an overcrowded world this is no small advantage.*
>
> *Now if only my arguments in favour of the book are 50% right - no - 25%, then it is vital that we get these reasons across to the young and those responsible for their upbringing. Now this is not so difficult a task as many make it out to be. Computers and video may be exciting, but for most the excitement wears off quickly. Books produce a wholly different and deeper excitement, a commitment and experience that not only lasts but tends to grow of its own accord. Watch a child being told a story; watch a child reading a story and this becomes self-evident.*
>
> *So we must bring to our task of educating the child in the excellences of the book every weapon and wile we can lay our hands on."*
> (Goff, 1984 : 5)

It is open to question whether we value and use books as we ought to in teaching. Teachers, like parents, often use books to rid themselves of children; teachers setting assignments, for instance, without thorough preliminary planning which includes the selection of sources, have probably never discovered the value of books for themselves.

Books not only serve as a source of information, but also form attitudes and develop the imagination. A good many of the projects, creative work and audio-visual programmes at school, find their origin in books which have been introduced to pupils by subject or media-teachers.

BOOKSTOCK

If we consider the nature of the bookstock in the media centre, we find that libraries have a traditional and convenient division of stock into non-fiction and fiction. This is based on the use of non-fiction as source of information, while stories are used as means to learning language, or for recreation. It would, however, be a pity if this artificial compartmentalization were to limit the teacher's discovery and use of the rich diversity of books available today.

Non-fiction which serves the pupil's interests, for instance, offers excellent recreation, as well as an informal opportunity to improve his language skills and extend his vocabulary in the second language as well as his own. Stories as form, again, may be used to clothe facts appealingly in the form of a biography. The traditional divisions should clearly not be allowed to compartmentalize or fence off stock for pupils.

They should, of course, be led to discover the different kinds of books as well as learning to identify information books and to assess the accuracy of the information offered. Ideally, every subject and class teacher should append a short list of sources drawn from ready reference works, non-fiction, fiction, periodicals, etc., to every assignment theme, and should update these lists annually.

Do stories have anything to offer science subjects, except as biographies? We are going to have a closer look at this. One of the latest developments in the field of picturebooks, is books for older pupils and adults. We are going to study a book on a nuclear explosion in strip picturebook form, in the practical work.

2. BOOKS ARE INFORMATION SOURCES

2.1 Evaluating non-fiction for children

Media centre stock is usually bought with the use of the Media Guide as source of titles. It is published five times a year and lists titles of new books and other media which have been evaluated by the Education Media Service. Entries are described in full and the whole is provided with a subject index to enable subject and class teachers to select for acquisition according to identified needs.

2.1.1 Criteria

The Media Guide stock has been evaluated with the use of established criteria. These criteria serve to determine accuracy and to gauge the quality of the presentation of facts. The analysis which this entails, also serves to reveal the interesting variety of presentations. Let us look at a selection of slides illustrating the characteristics of good, conventional non-fiction, but also showing other forms of presentation.

The criteria of which you will receive a copy, should not be considered prescriptive as if all books should be made to fit this pattern; it should serve as guide only, to determine not only the quality of the book but also its unique individuality. Books lacking individuality are soon exposed as the robots of the book world: without heart or life of their own and probably without any particular contribution to make as well. But no book meets all criteria; it should be tested by the aims the author has set himself.

The criteria used here may also be used to test the accuracy of information in other media such as transparencies and slide-sound programmes, with slight adaptation.

2.1.2 Encyclopaedias

Encyclopaedias are a specialized section of non-fiction. The search for information usually starts with this type of source, with which the pupil then becomes very familiar indeed. An encyclopaedia is consulted to find basic, concise facts on an unknown subject. Should more complete information be desired, this is then sought in other, more specialized non-fiction. The alphabetical subject catalogue in the media centre serves to lead the user to other sources on the subject.

New schools are supplied with a few sets of standard encyclopaedias as part of the initial allocation. It is of the greatest importance, however, that this collection should be sifted and supplemented regularly.

The acquisition of a new set must be planned judiciously; this publication is not only a key source but extremely expensive into the bargain. In addition to the Media Guide, the Education Media Service offers an advisory service on choosing an encyclopaedia for a specific need. Don't depend solely on the promotion of the salesman, but insist on objective evaluation. For the evaluation of general encyclopaedias, the Education Media Service uses the following criteria:

Evaluation of encyclopaedias

- target group
- arrangement
- comprehensiveness
- authoritativeness
- accuracy
- usefulness
- visual communication
- verbal communication

(See Annexure I)

Copies of this list of criteria are available, with examples of the application of the criteria to specific titles. Many enquiries are received from parents wishing to buy a set for home use. Do use this material to offer a service to the parents as well. The journal of the School Media Association Skoolmediasentrum / School Media Centre, has useful guidelines as well (See numbers 2/83 and 1/84).

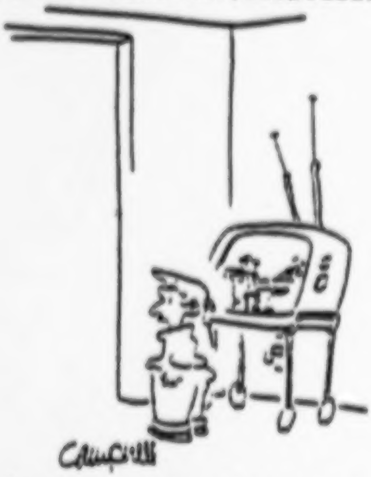
2.2 Practical work

2.2.1 Encyclopaedias

The following annexures may serve as guide to evaluation:

I Transvaal Education Media Service. Evaluation of encyclopaedias for schools : Criteria

II Transvaal Education Media Service. Example of the use of the criteria : World book encyclopedia.



"Hey, mom! This guy says he's on the show to plug his book. What's a book?"

2.2.2 Non-fiction

Evaluate one of the following books available on the shelf, using the given criteria (Annexure III):

GOURLAY C	Computers and mathematics
HOLM E	Elke sprinkaan spring: Insekgedrag menslik betrag
HUGHES G en TRAVIS S	Die wêreld van die Bybel
TIGWELL T	Sakina in India
VAN DER LINDE W A	Die poskantoor

3. BOOKS FORM ATTITUDES

3.1 Stories

Conveying facts to a child is but part of the process of education; at the same time positive attitudes should be inculcated. This is applicable to every subject from Religious Education to Science.

IMAGINATION

The role of imagination is decisive in the formation of attitudes, and stories appeal largely to the imagination. The stories need not necessarily be fictional; but facts offered in story form usually give a more human, emotional dimension to events. The child identifies more readily with the characters, whether real or fictional, and in this manner shares their experience. The result is a change in attitude towards the subject of the story. For this reason stories are excellent media for forming or changing attitudes.

Fantasy such as science fiction, seems to many people an extreme form of imaginative literature. And yet one of the well-known authors in this field spoke of the role of the imagination in discovering 'the incredible realities of our existence', in the following way:

> *"We who hobnob with hobbits and tell tall tales about little green men are quite used to being dismissed as mere entertainers, or sternly disapproved of as escapists. But ... readers are (beginning to accept) the fact that an improbable and unmanageable world is going to produce an improbable and hypothetical art. At this point, realism is perhaps the least adequate means of understanding or portraying the incredible realities of our existence. A scientist who creates a monster ... a wizard unable to cast a spell ... may be precise and profound metaphors of the human condition. The fantasist, whether he uses the ancient archetypes of myth and legend or the younger ones of science and technology,*

> *may be talking as seriously as any sociologist - and a good deal more directly - about human life as it is lived, and as it might be lived, and as it ought to be lived. For, after all ... it is ... by the imagination that we achieve perception, and compassion, and hope ..."*
> (le Ber, 1981 : 38)

Stories are the form in which we have inherited that archetypal literature, folklore. This mixture of truth and fabrication, wisdom and superstition and above all, the strongly symbolic nature of this literature, is a whole field of study on its own (See Bettelheim : The uses of enchantment).

EMOTIONAL USAGE IN LANGUAGE

It is, of course, possible to overdo stories with an emotional appeal so that it verges on emotional exploitation or even indoctrination. Even in stories, therefore, it is necessary to counterbalance an appeal to the emotions with an appeal to the reason. This is why pupils are taught the skills of critical thinking as well, and are encouraged to develop the intellectual ability to identify emotionally coloured language. Thouless illustrates this analytical ability in the following excerpt:

> *"When we become aware of this difference between the factual and emotional uses of words, we shall notice that words which carry more or less strong suggestions of emotional attitudes are very common and are ordinarily used in the discussion of such controversial questions as those of politics, morals, and religion. This is one reason why men can go on discussing such questions without getting much nearer to a rational solution of them.*
>
> *There is a well-known saying that the word 'firm' can be declined as follows: I am firm, thou art obstinate, he is pig-headed. This is a simple illustration of what is meant. 'Firm", 'obstinate', and 'pig-headed' all have the same factual meaning - that is, following one's own course of action and refusing to be influenced by other people's opinions. They have, however, different emotional meanings; 'firm' has an emotional meaning of strong approval, 'obstinate' of mild disapproval, 'pig-headed' of strong disapproval. If we wanted to find an emotionally neutral term that would convey the same idea without expressing either approval or disapproval, we should say perhaps 'I is not easily influenced'.*
>
> *We can put this in another way. 'I am firm' is equivalent to saying 'I am not easily influenced and that is a good*

> *thing'; 'Thou art obstinate' is the same thing as 'Thou art not easily influenced and that is rather a bad thing'; 'He is pig-headed' means 'He is not easily influenced and that is a very bad thing' ... Such words are, no doubt, useful but they are a danger to reasonable thinking. In times when we are at war, our thought is dominated by emotional attitudes of approval of our own forces and war aims and of disapproval of those of our enemies. Then we are much inclined to the use of emotional language. We may talk of the spirit of our own soldiers and the mentality of the enemy soldiers, of the heroism of our own troops and the foolhardiness of the enemy. When peace comes and we look back on the facts more objectively, we can realise that a spirit and a mentality are factually the same, but the one word has an emotional meaning of approval while the other expresses disapproval."* (Thouless, 1974 : 11)

3.2 Practical work

Demonstrating the use of a story in picturebook format to create a positive attitude towards the judicious use of natural sources

3.2.1 SLIDE-SOUND PROGRAMME : SEA PEOPLE

For pupil use this programme should be followed by an assignment, e.g.

- Find examples of the advised/inadvised use of natural sources/energy in your environment. Your report can take the form of notes, illustrations, photos, taped interviews or a home-made model.
- Write a report on one large project undertaken in the R.S.A. for the better utilization of water sources. (A source list should be supplied)

3.2.2 GROUP WORK : WHEN THE WIND BLOWS.. Briggs

3.2.2.1 Read the story in strip picturebook format together

3.2.2.2 Complete the attached worksheet (Annexure IV)

3.2.2.3 Report to the meeting

4. BOOKS DEVELOP SKILLS

Seeing that it is practically impossible to analyze the full potential use of books at such a course, the stress is on the use of illustrations in books once more, rather than on the text.

PICTUREBOOKS

You have been introduced to a variety of picturebooks. The demonstration which follows uses a series of slides to show the wealth of possibilities for use for the development of skills such as the following: picture-reading and interpretation, appreciation of style, colour, shape and atmosphere; grasping and interpreting inferences; analyzing a sequence of events and causality, etc. (See also Component B3 in the Media User Guidance Programme).

5. CONCLUSION

Other printed media such as periodicals, pamphlets, pictures and maps each has its own nature and potential for use; periodicals in particular are closely related to books. Periodicals of better quality struggle for existance. Schools are, however, provided with a selection of worthwhile titles annually on behalf of the subject committees. Ensure that these titles are exploited to the full in your class/subject. Also have a look at the exhibition which has been mounted, with a view to suggestions on the use of periodicals and art prints, in particular.

In conclusion, remember that books and other printed media are priceless sources for producing slide-sound programmes. This has after all, been demonstrated throughout in this lecture.

6. BRONNELYS / SOURCE LIST

ARDLEY, N 1975 Atoms and energy. Maidenhead, Sampson Low.

ASIMOV, I 1982 How we found out about nuclear power. Harlow, U K, Longman.

BETTELHEIM, B 1976 The uses of enchantment; the meaning and importance of fairy tales. London, Thames and Hudson.

BRIGGS, R 1982 When the wind blows. London, Hamish Hamilton.

COERR, E 1981 Sadako and the thousand paper cranes. Sydney, Hodder and Stoughton.

COX, J 1977 Overkill: The story of modern weapons. Harmondsworth, England, Kestrel Books.

GOFF, M 1984 1984 - The managed culture. Books For Keeps, January 1984, no 24.

GOURLAY, C 1982 Computers and mathematics. London, Macdonald Educational.

HOLM, E 1983 Elke sprinkaan spring: Insekgedrag menslik betrag. Johannesburg, Perskor.

HUGHES, G en TRAVIS, S 1983 Die wêreld van die Bybel. Kaapstad, Human en Rousseau.

LABAR, M 1981 Slipping the truth in edgewise. Christianity Today, March 1981, V XXV, no 6.

MÜLLER, J and STEINER, J 1982 The sea people. London, Victor Gollancz.

ONDERWYSMEDIADIENS / EDUCATION MEDIA SERVICE. 1984 Evaluering van ensiklopedieë vir skole/Evaluation of encyclopaedias for schools. Skoolmediasentrum/School Media Centre, Junie/June 1984, v 16, no 1 : pp 43 - 44.

ONDERWYSMEDIADIENS / EDUCATION MEDIA SERVICE. 1983 Evaluering van ensiklopedieë vir skole/Evaluation of encyclopaedias for schools. Skoolmediasentrum/School Media Centre, Desember/December 1983, v 15, no 2 : pp 42 - 46.

STEIN, R C 1982 Hiroshima. Chicago, Childrens Press.

THOULESS, R H 1974 Straight and crooked thinking. London, Pan Books.

TIGWELL, T 1982 Sakina in India. London, Adam and Charles Black.

TRANSVAAL EDUCATION DEPARTMENT. Transvaal Education Library and Audio-Visual Ancillary Service. 1979 Programme for media user guidance in the school media centre. Pretoria, T.E.D.

TRANSVAALSE ONDERWYSDEPARTEMENT. Transvaalse Onderwysbiblioteek- en Oudiovisuele Hulpdiens. 1979 Program vir mediagebruikersleiding in die skoolmediasentrum. Pretoria, T.O.D.

VAN DER LINDE 1982 Die poskantoor. Kaapstad, HAUM.

ANNEXURE I

TRANSVAAL EDUCATION MEDIA SERVICE

EVALUATION OF ENCYCLOPAEDIAS FOR SCHOOLS : CRITERIA

1. TARGET GROUP
1.1 What is the target group?
1.2 Does it cater successfully for this group?

2. ARRANGEMENT
2.1 Alphabetical?
2.2 Systematic?
2.3 Separate indexes?
2.4 Easy reference use?

3. COMPREHENSIVENESS
3.1 Number of entries?
3.2 Incidence of crossreferences

4. AUTHORITATIVENESS
4.1 Articles signed?
4.2 Reading lists provided with articles?
4.3 Status of contributors?
4.4 What is the history/source of set?

5. ACCURACY
5.1 Factually accurate?
5.2 Up-to-date?
5.3 Provision for regular updating?

6. USEFULNESS
6.1 Subject coverage adequate?
6.2 Local applicability?

7. VISUAL COMMUNICATION
7.1 Quality of layout and typography?
7.2 Incidence and quality of illustrations?
7.3 Incidence of maps/diagrams?

8. VERBAL COMMUNICATION
8.1 Writing style?
8.2 Editing of high standard?
8.3 Translation professional?

BYLAE I

TRANSVAALSE ONDERWYSMEDIADIENS

EVALUERING VAN ENSIKLOPEDIEË VIR SKOLE : KRITERIA

1. TEIKENGROEP

1.1 Watter teikengroep is gekies?
1.2 Is daar voldoen aan die behoeftes van die groep?

2. RANGSKIKKING

2.1 Alfabeties?
2.2 Sistematies?
2.3 Aparte registers?
2.4 Maklike gebruik as verwysingsbron?

3. OMVATTENDHEID

3.1 Getal inskrywings?
3.2 Voorkoms van kruisverwysings?

4. GESAGHEBBENDHEID

4.1 Artikels geteken?
4.2 Leeslyste voorsien by artikels?
4.3 Status van bydraers?
4.4 Wat is die geskiedenis/oorsprong van stel?

5. AKKURAATHEID

5.1 Feite korrek?
5.2 Op datum?
5.3 Voorsiening vir gereelde opdatering?

6. BRUIKBAARHEID

6.1 Onderwerpdekking toereikend?
6.2 Plaaslike toepaslikheid?

7. VISUELE KOMMUNIKASIE

7.1 Gehalte van uitleg- en tipografiese werk?
7.2 Voorkoms en gehalte van illustrasies?
7.3 Voorkoms van kaarte/diagramme?

8. VERBALE KOMMUNIKASIE

8.1 Skryfstyl?
8.2 Redigering van gehalte?
8.3 Vertaling vakkundig?

TRANSVAAL EDUCATION MEDIA SERVICE

EVALUATION: ENCYCLOPAEDIAS FOR SCHOOLS

EXAMPLE OF USE OF THE CRITERIA

EVALUATION: World book encyclopedia. World Book 1983 First published 1917 22 v illus ISBN 0 7166 0082 X

1. TARGET GROUP

1.1 WHAT IS THE TARGET GROUP?

Elementary school, junior high school and high school.

1.2 DOES IT CATER SUCCESSFULLY FOR THIS GROUP?

It is too advanced for the lower standards of the primary school.

It is suitable for the junior secondary and senior secondary groups (the age group 12 to 18 years).

2. ARRANGEMENT

2.1 ALPHABETICAL?

Entries are arranged alphabetically, using the word-by-word system.

2.2 SEPARATE INDEXES?

A comprehensive index appears in volume 22.

2.3 EASY REFERENCE USE?

Easy reference is achieved through:

- Clear and eye-catching lettering on the spine of each volume
- Alphabetical arrangement of entries
- Guide words at the top of pages
- Division of articles into short sections with prominent headings and sub-headings in bold print
- Extensive index entries
- Manageable size of volumes
- Volumes lie flat when open
- Numerous cross-references

3. COMPREHENSIVENESS

3.1 NUMBER OF ENTRIES?

Articles: 21 400
Index entries: 150 000

3.2 INCIDENCE OF CROSS-REFERENCES?

Text and entry cross-references: number not given but copiously provided
Index cross-references: 100 000

4. AUTHORITY

4.1 ARTICLES SIGNED?

With the exception of a few brief entries, all articles are signed with the full names of the contributors or reviewers.

4.2 READING LISTS PROVIDED WITH ARTICLES?

1300 carefully selected, major articles are supplied with reading lists citing 5000 titles. Some lists are graded at two levels. The titles are mainly U.S.A. publications.

4.3 STATUS OF CONTRIBUTORS?

The contributors, together with their academic qualifications, professional status and publications are listed at the beginning of volume 1.

4.4 WHAT IS THE HISTORY/SOURCE OF THE SET?

It was first published in 1917 as an 8 volume set, and expanded through the years to 22 volumes. Since 1936 it has been based on the American school curricula.

1961 the first braille encyclopaedia
1964 a large-type edition
1972 an index volume
1975 metric equivalents added to measurements
1978 computer technology used for revision
1980 recorded edition on cassette tapes and indexes in both braille and large type
1983 substantial increase in reading lists.

5. ACCURACY

5.1 FACTUALLY ACCURATE?

The information is reliable in all vital areas, and factually and objectively presented e.g. the article 'South Africa', a well-known field, has been checked and found to be fair and impartial in the treatment of the country and its racial policies.

5.2 UP-TO-DATE?

The editors claim continuous revision of the whole set. A revised edition is published every year. The 1983 edition has been extensively revised: there are 100 new articles, 280 completely revised articles, 1200 partially revised articles, many new illustrations and 71 new or revised maps. Unfortunately articles on South Africa have not been revised or updated. The map of the climatic regions still shows the Namib Desert in the wrong place - along the west coast of the Cape Colony. The brief article on the Cape Province still uses obsolete spelling for the mountain ranges.

5.3 PROVISION FOR REGULAR UPDATING?

An updated edition if published annually

A yearbook reviews the events of the previous year.

A three-year cumulative index lists entries of the current year book and the two preceding editions.

6. USEFULNESS

6.1 SUBJECT COVERAGE ADEQUATE?

The set gives comprehensive subject coverage in all areas of knowledge with emphasis on the United States. Extensive coverage is given to U.S. and Canadian school curricula and pupil needs

Major articles conclude with study aids.

Index volume includes an instructional section. 200 'Reading and study guides' are arranged alphabetically throughout the index.

6.2 LOCAL APPLICABILITY?

The coverage of South Africa is inadequate for South African schools. Apart from a fairly long article on the country, other articles are brief and few in number, consisting of a few biographies, articles on the provinces, major cities, homelands and race-groups, the Boer War, etc. The information is factually and impartially presented.

7. VISUAL COMMUNICATION

7.1 QUALITY OF LAYOUT AND TYPOGRAPHY?

Well laid-out pages in two columns. Much typographic and illustrative variation, without the pages being cluttered. Clear and legible print with adequate interlinear and inter-column spacing.

Prominent headings and subheadings of articles and subsections, in bold type.

7.2 INCIDENCE AND QUALITY OF ILLUSTRATIONS?

29 000 illustrations, 14 000 in colour. Article 'Painting' includes 118 quality reproductions. Article 'Human body' includes transparent colour overlays. The variety is wide, carefully selected and functional. The illustrations are of a fine quality, vivid, and placed with the relevant text.

7.3 INCIDENCE OF MAPS/DIAGRAMS?

2300 maps, mainly in colour. They consist of historical, political, physical, thematic and locater maps of various sizes and are included within the articles of the countries.

Effective, sharply delineated diagrams and charts, mainly in colour, illustrate scientific and technical articles.

8. VERBAL COMMUNICATION

8.1 WRITING STYLE?

According to editors the vocabulary of each article has been checked by an authority for readability. The style is lucid, direct and well-written. Writing is graded according to the complexity of the subject to suit the age level where the subject is most commonly used.

Many articles follow the simple-to-more complex approach.

Technical terms are printed in italics and the meanings given in parentheses or explained in the context of the sentence.

American spelling and idiom are used.

8.2 EDITING OF HIGH STANDARD?

Language and writing style have been most carefully edited, mistakes are practically non-existent.

8.3 TRANSLATION PROFESSIONAL?

Not translated. Original publication.

BYLAE II

TRANSVAALSE ONDERWYSMEDIADIENS

EVALUERING: ENSIKLOPEDIEË VIR SKOLE

VOORBEELD VAN DIE GEBRUIK VAN KRITERIA

EVALUERING: Wêreldspektrum Ensiklopedie Afrikana 1982 30 v
ISBN 0 908409 41 9

1 TEIKENGROEP

1.1 WATTER TEIKENGROEP IS GEKIES?

Die teikengroep word nie deur die redaksie aangedui nie, behalwe dat die stel aangebied word vir die moderne onderwyssituasie en vir oud en jonk wat selfstandig kennis wil opdoen.

1.2 IS DAAR VOLDOEN AAN DIE BEHOEFTES VAN DIE GROEP?

In die meeste gevalle is die algemene gevorderde taal en aanbieding, in die gewone leessituasie, bokant die begripsvermoë van die gemiddelde leerling in die laer en middelstanderds van die primêre skool.

Die stel is geskik vir die ouderdomsgroep 12-18 jaar, m.a.w. die junior sekondêre en senior sekondêre fases.

'n Groot getal artikels, veral van wetenskaplike en tegniese aard, is te gevorderd vir die laer ouderdomme van die groep.

Die stel sal egter voorsien in die meeste naslaanbehoeftes van die groep.

2 RANGSKIKKING

2.1 ALFABETIES?

Ja

2.2 APARTE REGISTERS?

'n Aparte register beslaan die laaste boekdeel. Die registerinskrywings is analities en toeligtend, met verduidelikings waar nodig.

2.3 MAKLIKE GEBRUIK AS VERWYSINGSBRON?

Die stel is maklik om te gebruik as verwysingsbron vanweë die

omvattende analitiese register;
alfabetiese rangskikking van inskrywings;
gidswoorde bo-aan die bladsye;
duidelike trefwoorde in vetdruk;
verdeling van artikels in genommerde onderafdelings, met duidelike vetgedrukte opskrifte, waarvan 'n opgawe direk onder die trefwoord verskyn;
wye spasiëring tussen artikels en onderafdelings;
hanteerbare grootte van boekdele;
bladsye wat plat lê as die boekdele oop is;
voldoende kruisverwysings na verwante artikels.

Nadele vir vlugtige naslaan:

lang artikels met breë onderwerpdekking;
rugstroke toon net die aanvangsletters van die eerste woord en nie dié van die laaste woord nie. Dit kan lastig wees aangesien 'n letter na die volgende een oorgaan in die middel van 'n boekdeel.

Letterwerk op die rugstroke is in silwer wat nie voldoende opsigtelik is nie.

3 OMVATTENDHEID

3.1 GETAL INSKRYWINGS?

Getal word nie gegee nie.

Die getal is beperk tot belangriker onderwerpe wat redelik omvattend in breë verband behandel word.

3.2 VOORKOMS VAN KRUISVERWYSINGS?

Die getal word nie verskaf nie maar daar is voldoende kruisverwysings:

In die register: vir ekwivalente begrippe;
naverwante aspekte van die onderwerp;

In die teks: Trefwoordverwysings na ekwivalente inskrywings;
direkte teksverwysings na 'n woord;
kruisverwysings aan die end van artikels,
of hulle onderafdelings, naverwante artikels;

4 GESAG

4.1 ARTIKELS GETEKEN?

Nee.

4.2 LEESLYSTE VOORSIEN BY ARTIKELS?

Nee. Waarskynlik weens beperkte vakliteratuur in Afrikaans.

Die wenslikheid van Engelse titels behoort oorweeg te word.

4.3 STATUS VAN MEDEWERKERS?

'n Lys van medewerkers met hulle akademiese kwalifikasies, is ingesluit voor in die indeksboekdeel.

Dit word gevolg deur 'n lys van die adviseurs, wat ook verskeie organisasies insluit, met hulle professionele titels, waar van toepassing, en die vakgebied waarvoor elkeen verantwoordelik is.

4.4 DIE GESKIEDENIS/OORSPRONG VAN DIE STEL?

'n Nuwe stel en eerste publikasie.

Geen inligting word deur die redaksie verskaf oor die agtergrond van die stel nie.

Volgens inligting op die keersy van die titelblad behoort die kopiereg van sekere ingeslote materiaal aan 'Het Spectrum', Nederland, wat ook ongetwyfeld die bron van die titel is.

5. AKKURAATHEID

5.1 FEITE KORREK?

Afgesien van enkele redaksionele foute, soos die verwarring van die foto van die Groote Kerk in Kaapstad met die Lutherse Kerk, v 2, p 16, skyn die inligting betroubaar en onpartydig te wees, kyk bv. die artikels 'Afrika' en 'Suid-Afrika'.

5.2 OP DATUM?

Inligting is op datum tot die begin van 1982.

5.3 GEREELDE BYWERKING EN/OF HERSIENING?

Geen inligting word verstrek oor hersiening, bywerking of 'n jaarboek nie.

6. BRUIKBAARHEID

6.1 ONDERWERPDEKKING TOEREIKEND?

Volgens die redaksie voldoen die stel aan die leerplanvereistes van Suid-Afrikaanse skole.

Die stel bied aan:

beperkte maar gebalanseerde dekking van alle vakgebiede;
artikels wat beperk is tot belangriker onderwerpe;
lang artikels waarin die onderwerpe redelik breedvoerig en volledig behandel is;
die volledige behandeling van geselekteerde onderwerpe wat in die meeste naslaanbehoeftes van leerlinge in die sekondêre fases voorsien.

6.2 PLAASLIKE TOEPASLIKHEID

Redelik omvattende dekking van Suid-Afrikaanse aangeleenthede op alle gebiede, insluitende biografieë.

Waar van toepassing, word Suid-Afrikaanse betrokkenheid ingeskakel by onderwerpe van algemene of internasionale aard, soos byvoorbeeld 'Soekor' in die artikel 'Aardolie', en die Wes-Kaaplandse aardbewings in die artikel 'Aardbewings'.

7 VISUELE KOMMUNIKASIE

7.1 GEHALTE VAN UITLEG- EN TIPOGRAFIESE WERK

Teks is verdeel in drie kolomme per bladsy.

Drukwerk is duidelik met voldoende spasiëring tussen reëls, woorde, artikels en kolomme vir gemaklike lees en vlugtige naslaan.

Daar is voldoende tipografiese afwisseling deur die gebruik van vetdruk, kursiewe druk, tabelle, byskrifte, illustrasies en grafieke.

7.2 VOORKOMS EN GEHALTE VAN ILLUSTRASIES

Die getal illustrasies word nie deur die redaksie verstrek nie, behalwe dat hulle feitlik 50 persent van die ruimte dek.

Die illustrasies is indrukwekkend beide wat kwaliteit en hoeveelheid betref

Hulle is feitlik uitsluitlik in kleur, en bestaan uit foto's, tekeninge, diagramme, landkaarte, ens.

Saam met die byskrifte vorm hulle 'n integrale deel van die teks.

Transparante van 'n olieboor is ingesluit by die artikel 'Aardolie'.

7.3 VOORKOMS VAN LANDKAARTE/DIAGRAMME?

'n Groot verskeidenheid landkaarte is ingesluit dwarsdeur die stel. Afhangende van die onderwerp, sluit hulle staatkundige, tematiese, topografiese, reliëf-, en historiese kaarte in, sowel as stedelike gebiedskaart

Die kaarte is duidelik, in kleur, nie oorlaai met inligting nie, en op datum.

'n Groot leemte is die afwesigheid van klein lokaliseerkaarte by artikels oor individuele lande, om dié land se ligging in die kontinent aan te dui.

'n Uitstaande kenmerk van die stel is die voortreflike diagramme, deurgaans in kleur, waarvan veral wetenskaplike en tegniese artikels ruimskoots voorsien is.

8. VERBALE KOMMUNIKASIE

8.1 SKRYFSTYL?

Oor die algemeen is die taal goed versorg.

Dit is objektief, direk, leesbaar en duidelik gestel.

Die toon is nogtans gevorderd en baie artikels vereis beduidende agtergrondkennis vir gewone leesbegrip.

Die meeste artikels begin met 'n kursiefgedrukte inleiding, wat 'n oorsigtelike en verklarende opsomming gee, in makliker terme as die res van die inhoud.

Wetenskaplike en tegniese artikels gebruik gespesialiseerde terminologie, wat wel in die teks, of deur die sinsverband verduidelik word.

Enkele taal-, spel- en drukfoute, lomp sinsbou en dubbelsinnige of onsamehangende inligting kom soms voor.

8.2 REDIGERING VAN GEHALTE?

Oorwegend goed geredigeer wat aanbieding, stilistiese egaligheid, algemene taalversorging en onpartydige en onbetrokke benadering betref.

8.3 VERTALING VAKKUNDIG?

Inligting oor vertaling of verwerking uit die Nederlandse werk, wat die kopiereg oor sekere materiaal hou, word nie gegee nie.

Dit kan wel aangeneem word dat baie nie-Suid-Afrikaanse materiaal wel daaruit vertaal of vry verwerk is, sowel as 'n groot gedeelte van die illustrasies.

Indien artikels wel vertalings is, kan enkele stylfoute miskien daaraan toegeskryf word.

ANNEXURE III

TRANSVAAL EDUCATION MEDIA SERVICE

EVALUATING NON-FICTION FOR CHILDREN: CRITERIA

1. TARGET GROUP

    1.1 Is it written for children?

    1.2 If not, could it be used by children?

    1.3 What is the probable age range?

2. CONTENT

    2.1 General evaluation

    What are the objectives; have they been achieved?

    2.2 Analytical evaluation

        2.2.1 Is the information well chosen and will it serve to enrich understanding?

        2.2.2 Is it planned and presented systematically to facilitate comprehension and retention?

        2.2.3 Does it prove accurate when checked against subject reference sources?

        2.2.4 Is it authoritative, judging by the status of the author(s)?

        2.2.5 Is it up to date, and are dates given for facts quoted in the text as well as for the edition?

        2.2.6 Is the origin and context of the material identified, e g by stating that the situation described is that in the hinterland of Australia at the turn of the century?

        2.2.7 Are sources quoted

        2.2.8 Is the information relevant to the needs of your pupil?

        2.2.9 Are the pages clearly numbered?

        2.2.10 Is the title descriptive?

        2.2.11 Are bibliographical particulars complete?

        2.2.12 Does the table of contents give an adequate outline of the field covered?

        2.2.13 Is it possible to trace important subjects through an alphabetical index?

        2.2.14 Does the author show intellectual integrity in his statement and interpretation of facts?

        2.2.15 Are the contents consistently geared to the needs of the target group?

3. VISUAL PRESENTATION

    3.1 Is the type-face well chosen: suitable for the age group, clear and uncluttered?

    3.2 Is the page lay-out professional -

        3.2.1 spacing satisfactory and the open areas placed to make for easy reading and over-all attractiveness

3.2.2 arrangement of material judiciously planned with insertion of the necessary headings, captions and marginal notes, etc.

3.2.3 text legible and uncluttered

3.2.4 double-spreads planned as a whole and focal points placed away from the centre-fold

3.2.5 illustrations identified and placed with the text to which they relate

3.2.6 variety in the techniques used in illustrations

3.3 illustrations:

3.3.1 Are they functional: do they elucidate or supplement the text?

3.3.2 Are they neat, clear and uncluttered?

3.3.3 Is the finish professional?

3.3.4 Are the illustrations adequate?

3.3.5 Do the illustrations relate to the age group?

4. VERBAL PRESENTATION

4.1 Is the language usage correct and idiomatic?

4.2 Is the text well edited and without printing errors?

4.3 Are technical terms introduced into the text and listed in a glossary at the end?

4.4 Is the vocabulary within reach of the target group?

4.5 Is the writing style good -

4.5.1 without pretension but fluent and interesting

4.5.2 free of condescension or bombastic overtones

4.5.3 detached and concise in statement

4.6 Are translations and translators acknowledged?

5. FORMAT

5.1 Is it suitable for the age group. For senior primary pupils a 'normal' size is preferable, i e between A5 and A4. The book should also not be thick or heavy. In any event it should be easy for the age group to handle?

5.2 Are the binding and spine sturdy, the quires stitched rather than pasted?

5.3 Is the appearance attractive and the title easily recognized

5.4 Is the paper of sufficiently good quality so that print doesn't show through and pages do not tear easily. The appearance should be white and clean and the quality heavy enough to make paging easy?

WARNING:

No book meets all requirements: avoid rigidity in applying criteria, because unusual but successful books may be rejected in the process. It is, however essential to evaluate non-fiction knowledgeably and analytically. This list of criteria offers one possible tool.

BYLAE III

TRANSVAALSE ONDERWYSMEDIADIENS

EVALUERING VAN VAKLITERATUUR VIR KINDERS : KRITERIA

1. TEIKENGROEP
   - 1.1 Is dit gerig aan kinders?
   - 1.2 Indien nie, kan kinders dit gebruik?
   - 1.3 Wat is die waarskynlike ouderdomspeling ?
2. INHOUD
   - 2.1 Oorsigtelike evaluering

     Wat is die doelwit en is dit bereik?
   - 2.2 Analitiese evaluering
     - 2.2.1 Is die inligting goed gekies en verrykend?
     - 2.2.2 Is dit sistematies en bepland aangebied om begrip en retensie te vergemaklik?
     - 2.2.3 Is dit akkuraat, gemeet aan vakbronne?
     - 2.2.4 Is dit gesaghebbend, gemeet aan status van skrywer(s)?
     - 2.2.5 Is dit op datum bygewerk, word datums vir gegewens in die inhoud en datum van uitgawe vermeld?
     - 2.2.6 Is die herkoms en verband van die inligting geïdentifiseer. Word bv. gesê dit geld 'n situasie in Australië se binneland aan die begin van die eeu?
     - 2.2.7 Word bronne aangegee?
     - 2.2.8 Is die inligting ter sake vir die leerling wat u in gedagte het?
     - 2.2.9 Is die bladsye duidelik genommer?
     - 2.2.10 Is die titel beskrywend?
     - 2.2.11 Is die bibliografiese gegewens volledig?
     - 2.2.12 Gee die inhoudsopgawe 'n goeie oorsig oor die inhoud?
     - 2.2.13 Is daar 'n alfabetiese register wat dit maklik maak om belangrike onderwerpe op te spoor?
     - 2.2.14 Toon die skrywer intellektuele integriteit in sy vertolking en stelling van feite?
     - 2.2.15 Is die teikengroep deurgaans in gedagte gehou?
3. AANBIEDING: VISUEEL
   - 3.1 Is die letterbeeld duidelik, onbelemmerd en goed gekies vir die ouderdomsgroep?
   - 3.2 Is die uitleg goed beplan?
     - 3.2.1 Is spasies en ruimtes goed geplaas vir leesbaarheid en aantreklikheid?
     - 3.2.2 Is die indeling van stof, voorsiening van opskrifte, onderskrifte, kantaantekeninge e.s.m. oordeelkundig?
     - 3.2.3 Is die teks onbelemmerd en maklik leesbaar?

68

3.2.4 Is die beplanning van dubbelblaaie so dat 'n eenheid gevorm word en belangrike materiaal nie oor vou in middel val nie?

3.2.5 Is illustrasies goed geplaas, by ter sake teks en geïdentifiseer?

3.2.6 Word van 'n verskeidenheid van tegnieke by illustrasies gebruik gemaak?

3.3 Is die illustrasies

3.3.1 funksioneel: teksverduidelikend of aanvullend;

3.3.2 netjies, duidelik en onbelemmerd;

3.3.3 professioneel afgewerk;

3.3.4 toereikend, en

3.3.5 spreek die illustrasies die ouderdomsgroep aan?

4. AANBIEDING: VERBAAL

4.1 Is die taalgebruik en skryfwyse korrek en idiomaties?

4.2 Is die teks goed geredigeer en dus vry van setfoute?

4.3 Word vakterme ingevoer in die teks en weer in 'n glossarium opgeneem?

4.4 Is die woordeskat binne die bereik van die teikengroep?

4.5 Is die skryfstyl goed -

4.5.1 sonder pretensie maar vlot en interessant,

4.5.2 vry van neerbuigende en bombastiese ondertone,

4.5.3 saaklik en vry van emosionaliteit?

4.6 Word vertalings en vertalers geïdentifiseer?

5. FISIESE VORM

5.1 Pas die formaat by die ouderdomsgroep? Vir die senior primêre leerling moet dit liefs 'normaal' wees, t.w. tussen A5 en A4 en nie te dik of swaar nie. Dit moet in ieder geval hanteerbaar wees vir die ouderdomsgroep.

5.2 Is die band en rug stewig, katerns verkieslik gestik en nie net geplak nie?

5.3 Is die voorkoms aantreklik en die titel duidelik kenbaar buite op?

5.4 Is die gehalte van die papier goed genoeg sodat die teks nie deurslaan en die blaaie nie maklik skeur nie? Dit moet skoon en wit vertoon en genoeg massa hê om maklik om te blaai.

WAARSKUWING:

Geen boek beantwoord aan alle kriteria nie; vermy dus 'n resepmatigheid wat ongewone maar geslaagde boeke sou afwys. Dis egter baie nodig dat vakliteratuur kundig en indringend geëvalueer word. Hierdie lys van kriteria is maar een moontlike instrument.

ANNEXURE IV

WORKSHEET : USING A STORY TO FORM ATTITUDES

BOOK: Briggs, R. When the wind blows

Read the stofy and complete the following:

1. Summarize the purpose of the story in one sentence.
2. Is it non-fiction of fiction?
3. List facts on the subject which are provided in the story
4. Check some of the facts against one of the sources provided. (See source list)
5. What techniques are used to ensure impact; name a few and state if you find them justifiable or not.
6. Have a look at the following sources on the subject, evaluate them cursorily and arrange in order of recommendation for use:

SOURCE LIST

ASIMOV, I	How we found out about nuclear power
ARDLEY, N	Atoms and energy
COERR, E	Sadako and the thousand paper cranes
COX, J	Overkill: The story of modern weapons
STEIN, R C	Hiroshima
KANET, K	Psychological effects of the arms race on children: implications for teachers, in Momentum, December 1983

TRANSPARENCIES
and the
OVERHEAD PROJECTOR

5

TRANSVAALSE ONDERWYSDEPARTEMENT
TRANSVAAL EDUCATION DEPARTMENT
ORIËNTERINGSKURSUS: ONDERWYSMEDIA
ORIENTATION COURSE: EDUCATIONAL MEDIA
1984

5. TRANSPARENCIES AND THE OVERHEAD PROJECTOR

Miss M S Cronje,
Senior Media Specialist
Education Media Service

AIMS

At the end of the lecture you should know:

- what the advantages of the use of the overhead projector and transparencies are in education;
- the various transparency materials available and how to use them;
- how to plan transparencies, taking into account the basic principles of design, layout, use of colour, drawings and lettering, and how to apply a variety of transparency techniques;
- the characteristics and use of the accessories of the overhead projector;
- how to carry out basic care and maintenance yourself;
- how to apply the basic principles of projection.

CONTENTS

1. Educational use

    - 1.2 Advantages of transparencies
    - 1.3 Advantages of the overhead projector
    - 1.4 Media selection
    - 1.5 Workshop

2. Transparencies

    - 2.1 Basic software
    - 2.2 Planning
    - 2.3 Techniques
    - 2.4 Workshop
    - 2.5 Acquisition and organisation

3. The overhead projector

    - 3.1 Projection
    - 3.2 Accessories
    - 3.3 Care
    - 3.4 Basic maintenance
    - 3.5 Purchasing and organisation

1.1 ADVANTAGES OF TRANSPARENCIES

1.1.1 • Transparencies can be made cheaply by yourself and have a variety of uses.

1.1.2 • Transparencies can be made before presenting a lesson.

1.1.3 • Transparencies can be easily stored and used over and over.

1.1.4 • Notes, diagrams, etc. can be drawn in front of the class or existing transparencies completed or added to as part of the lesson.

1.1.5 • Images can be built up step by step by using the overlay or revelation techniques.

1.1.6 • Attention can be drawn to aspects of a transparency by moving a pointer or laying down a pen in position.

1.1.7 • Simple movement can be simulated.

1.1.8 • Working models of scientific experiments can be projected.

1.1.9 • Transparencies are easy to make and even pupils are able to make them.

1.2 ADVANTAGES OF THE OVERHEAD PROJECTOR

1.2.1 • No darkening is necessary.

1.2.2 • Use in front of the lecture room ensures that the back need not be turned on the audience while writing on the board.

1.2.3 • Visual contact is kept with the audience throughout.

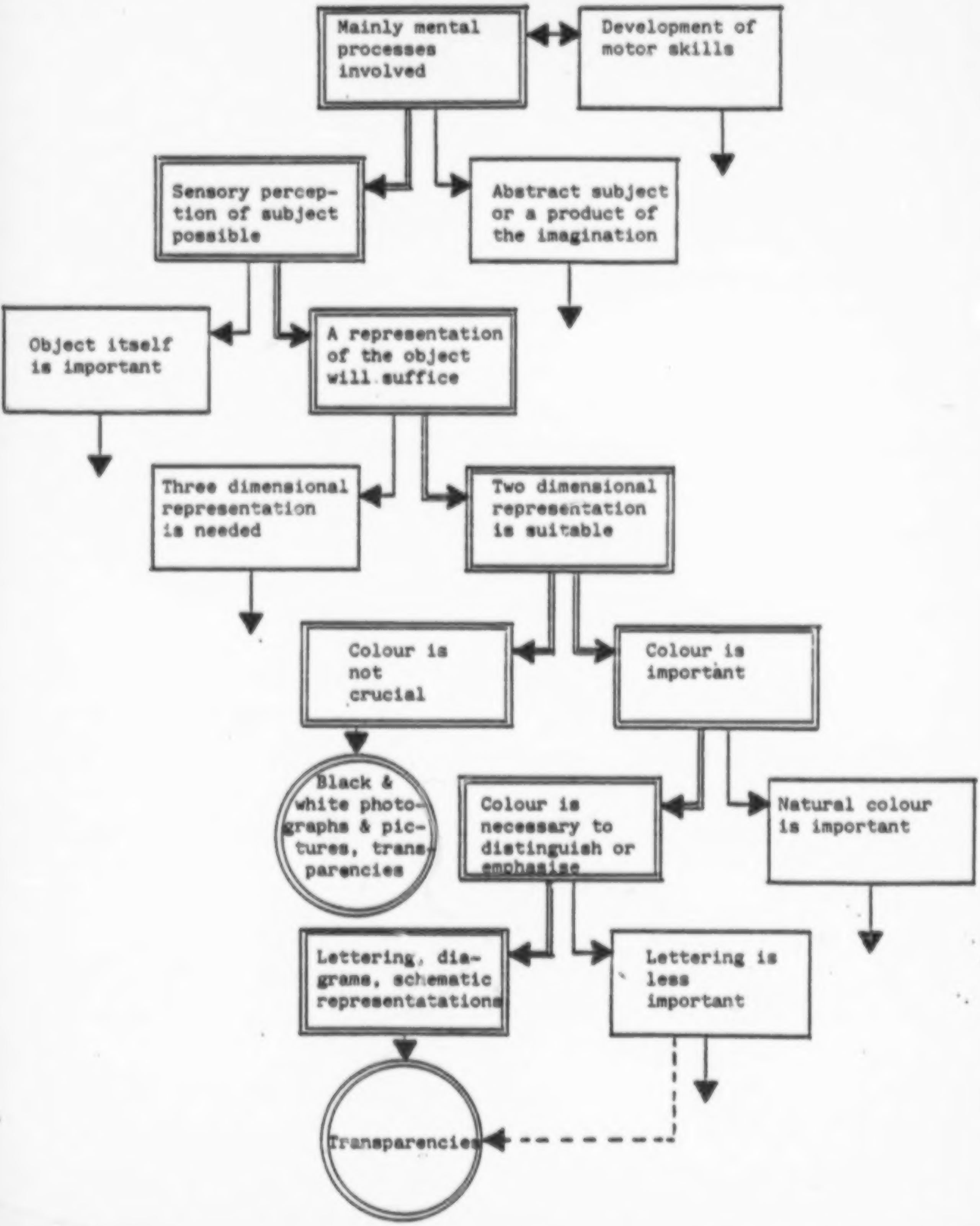
1.2.4 • The bright light on the screen provides a focal point for the attention of the audience.

1.2.5 • Software and worksheets can be made beforehand and used again later.

1.2.6 • The hardware is simple to use by both teachers and pupils.

1.2.7 • The hardware is clean, versatile, easily available and relatively inexpensive.

1.3 MEDIA SELECTION

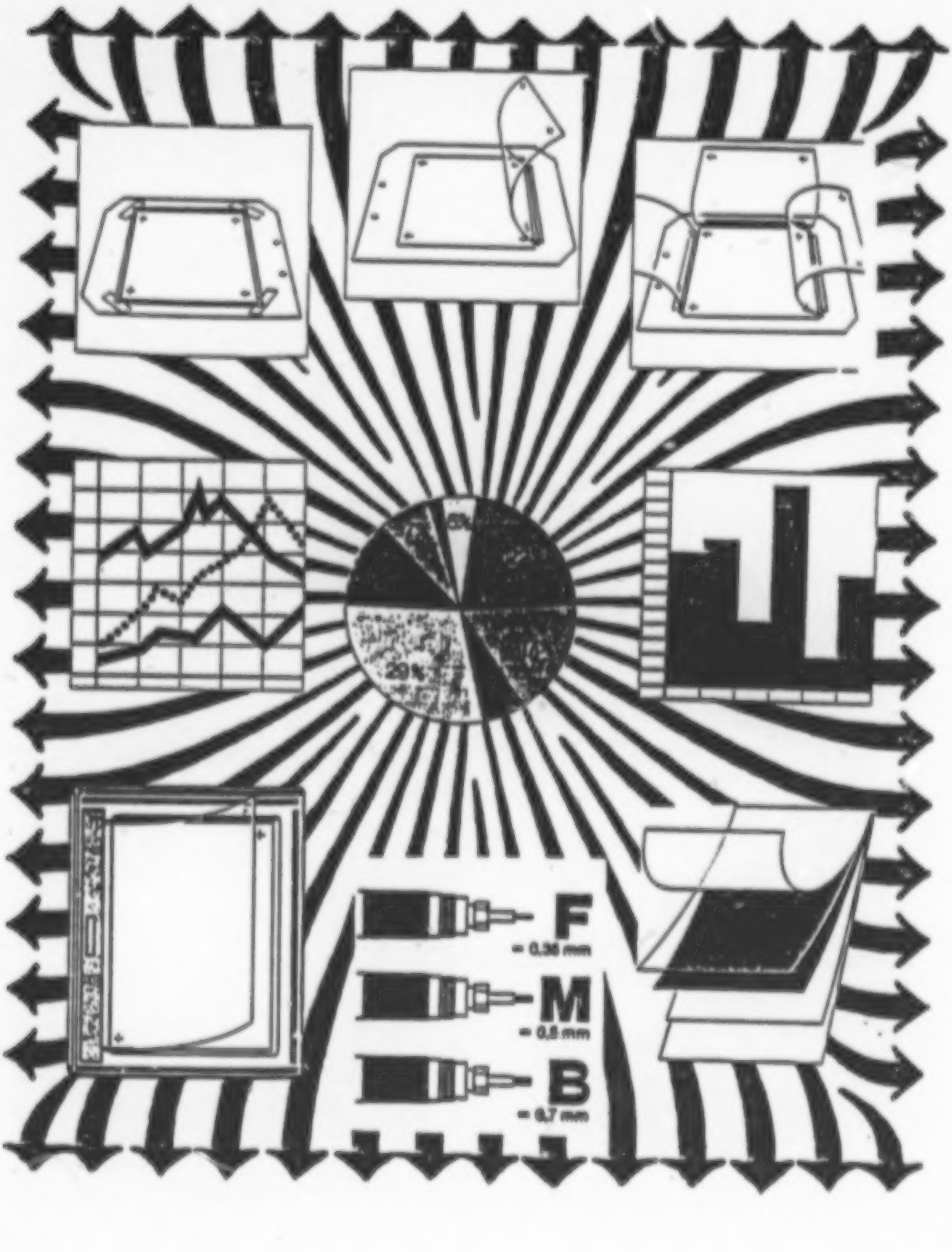

Mainly mental processes involved
Development of motor skills
Sensory perception of subject possible
Abstract subject or a product of the imagination
Object itself is important
A representation of the object will suffice
Three dimensional representation is needed
Two dimensional representation is suitable
Colour is not crucial
Colour is important
Black & white photographs & pictures, transparencies
Colour is necessary to distinguish or emphasise
Natural colour is important
Lettering, diagrams, schematic representatations
Lettering is less important
Transparencies

1.4 WORKSHOP

Use the diagram below for media selection to determine if transparencies will be a suitable medium for each of the following assignments:

No.	Assignment	Transparencies	Possible techniques (see pps 20-22)	Other media (mention)
1	Describe the life cycle of a frog or a butterfly.			
2	Explain how contour lines on a map represent the topography of an area.			
3	Explain concepts like 1/2, 1/4, 1/8 and 1/16.			
4	Illustrate the positions of the opposing forces at the Battle of Blood River.			
5	Illustrate the laying of a table for breakfast, lunch and a formal dinner.			
6	Explain how a new chemical compound is formed.			
7	Indicate the different plural and/or diminutive forms of words.			
8	Illustrate the most important elements in the composition of a painting.			
9	Explain the increase in the world population by the year 2000.			
10	Indicate the places in Israel where Christ performed miracles.			

TRANSPARENCIES 5


29%
F
= 0.35 mm
M
= 0.5 mm
B
= 0.7 mm

TRANSPARENCIES AND THE OVERHEAD PROJECTOR

2. Transparencies

Contents

- 2.1 Basic material
- 2.2 Planning
    - 2.2.1 Basic approaches
    - 2.2.2 Design and layout
    - 2.2.3 Elements of design
    - 2.2.4 Drawings
    - 2.2.5 Lettering
    - 2.2.6 Colour
- 2.3 Techniques
- 2.4 Workshop

"I THINK WE MIGHT CLEAR UP A LITTLE MISUNDERSTANDING ABOUT OVERHEAD PROJECTION ..."

2. TRANSPARENCIES

2.1 BASIC SOFTWARE

CATALOGUE FOR THE MEDIA CENTRE	TRANSPARENCIES	USE	CHARACTERISTICS
Item no. 9018441	Acetate or polyester sheets.	For writing or drawing directly on transparencies.	Not for use with transparency maker. Cheaper than thermal transparencies.
	Thermal transparencies.	Lay-out is done on paper to make a master which is burnt in onto the transparency with a thermal transparency-maker.	
Item no. 9018433	Black on clear.		A black image is burnt permanently onto a clear background.
Item no. 9031469	Black on coloured.		A black image is burnt permanently onto a coloured background.
Item no. 9031477	Coloured on clear.		A coloured image on a clear background,
	Transparencies for photocopier.	All transparency techniques can be used.	Prescribed transparency material to be used. Thermal transparency not suitable. Use a blank page to separate during storage as the powder deposit can damage transparencies. N.B. Textbook illustrations are generally unsuitable for direct use on transparencies. (Refer to "Requirements for transparencies"

	WRITING UTENSILS	USE	CHARACTERISTICS
	Wax pencils.	Write and draw on polyester sheets, different colours available.	Projects a coloured image: erases easily; not permanent; can be easily sharpened but point breaks easily.
Item no. 9018334	Felt-tipped pens.		
	* Water base (non-permanent).	Write and draw on polyester or thermal transparencies.	Different colours and thicknesses available; erase with damp cloth; not suitable for transparencies that are to be used repeatedly.
	* Spirit base (permanent).	Write and draw on polyester or thermal transparencies.	Different colours and thicknesses available can be erased with spirits, alcohol or transparency eraser. Suitable for transparencies that are used often.

CATALOGUE NO.	WRITING UTENSILS	USES	CHARACTERISTICS
	Technical pens.	Write and draw on polyester or thermal transparencies. Can be used with lettering stencils.	Filled with special ink for transparencies, spirit based, thus permanent. Writes with a line of even thickness. Suitable for fine letters or lines. A variety of colours and point thicknesses available. Pens are relatively expensive but very durable if well cared for.

CATALOGUE NO.	ERASERS	USES	CHARACTERISTICS
	Spirit base eraser, ordinary type.	For erasing permanent (spirit base) pens.	The plastic is impregnated with a solvent for erasing permanent pens. If the sides of the eraser become light in colour or will not erase any longer the dry outer layer should be cut off with a knife before being used again. The eraser can scratch the transparency material.
	Spirit base eraser, felt-tip.	For erasing permanent pen.	The felt tip is impregnated with solvent. The point can be cleaned after use by wiping it on clean paper. It does not scratch the transparency.

CATALOGUE NO.	OTHER EQUIPMENT	USES	CHARACTERISTICS
Item no. 8018410	Compasses.	For use with felt-tipped or technical pen.	The point of one leg is equipped with a suction disc so that it may be used directly on the transparency.
	Lettering stencils.	For direct writing on transparency with technical pen or writing on paper to make a transparency master.	Different letter sizes available. For transparencies 5mm is the most suitable.

CATALOGUE NO.	TRANSPARENCY FRAMES	USES	CHARACTERISTICS
	A4 size.	Protects transparencies, forms a useful surface for notes, facilitates handling, facilitates overlay and other techniques.	Wider and narrower frames are available. Frames which cover the top of the projector and allow light to shine only through the transparency are preferable to those that allow light to shine past the sides of the frame.

2.2 PLANNING OF TRANSPARENCIES

2.2.1 Basic approaches

What is the purpose of the presentation?
For which target group is it meant?
What part of the presentation can be done visually?

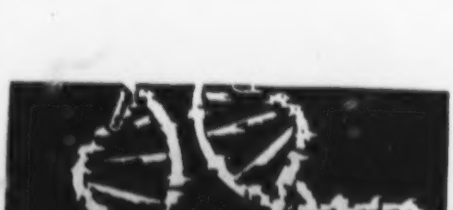
2.2.2 Design and layout

- Examples from everyday life can serve as source of ideas in the planning of a transparancy.
- Advertisements in newspapers and magazines as well as on television can become useful sources of reference for ideas.

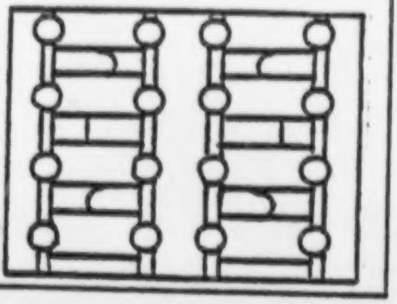
2.2.3 Principles for designing transparencies.

(1) Simplicity

- Maps, graphs and diagrams in books often contain too much detail to be used as successful transparencies.
- Select that which is important for your presentation and make a transparency that deals with one idea at a time.
- Lettering, simple and legible, can be grouped and arranged in an interesting and easily intelligible manner. Drawings should be large, clear and simple.

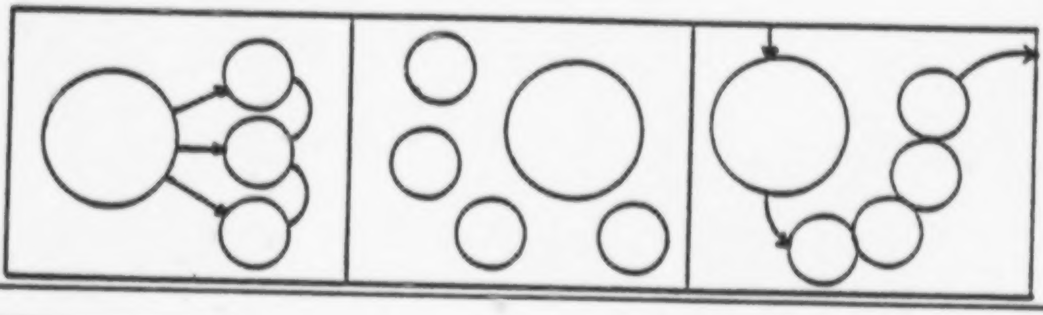


An intricate illustration can be simplified.



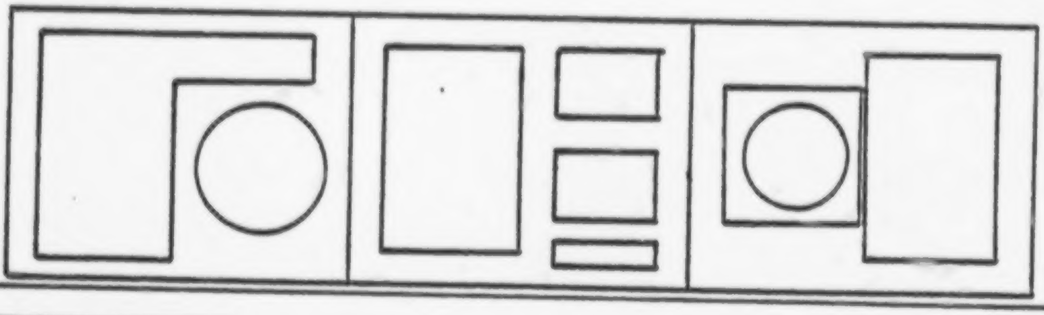
(2) Unity

- Unity refers to the mutual relationship between the elements of a visual presentation.
- Unity can be achieved by using pointers, arrows, lines, form, colour and texture or by touching or overlapping.



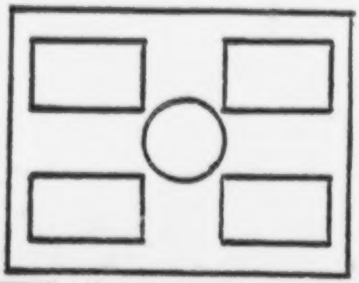
(3) Emphasis

Colour and space can be used to emphasise a single thought or element, differences in size, or perspective.

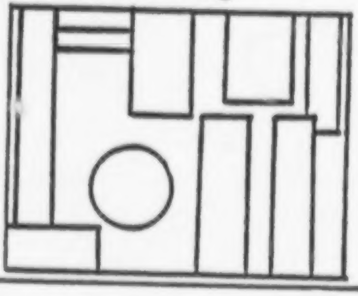


(4) Balance

- Formal balance consists of the arrangement of visual elements around a line that divides the image into two identical mirror images.
- This type of design is very static.



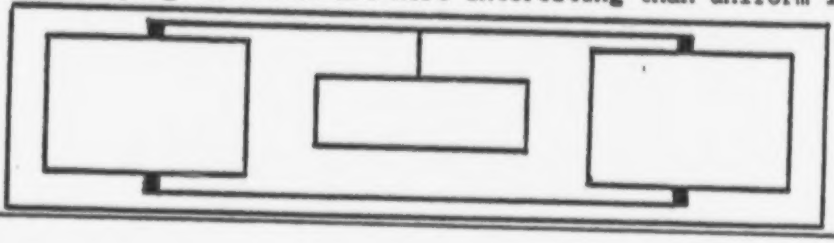
- Informal balance is asymmetrical. The elements of the design create the feeling of balance through their arrangement, without being grouped in equal parts round a centre line.
This kind of design is more dynamic and interesting.



2.2.4 Elements of design.

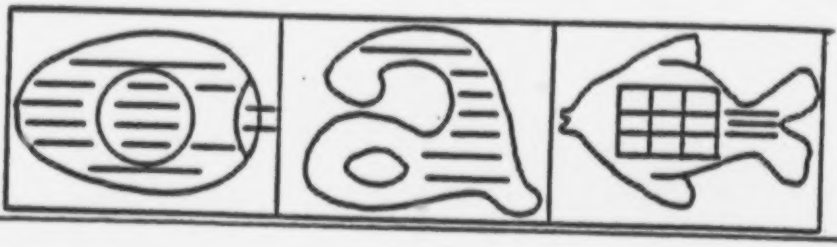
(1) Line

- A line or lines can connect the various aspects of a design and help to create unity or to indicate a certain sequence or order.
- Lines of varying thickness are more interesting than uniform lines.



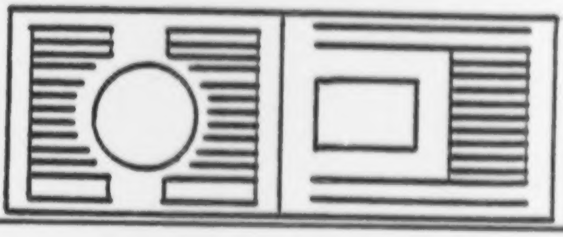
(2) Form

Interesting forms can result in remarkably successful visual images, provided they are relevant to the subject of the transparency.



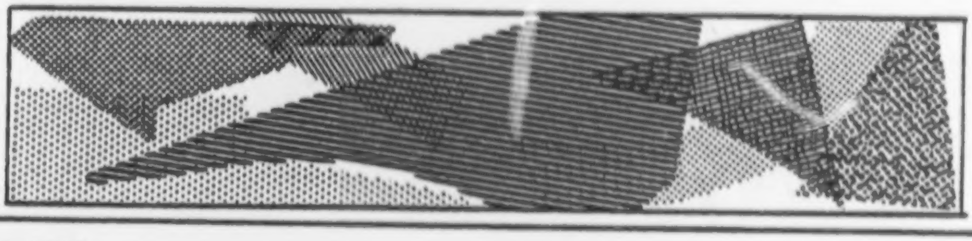
(3) Space

- Space around a drawing or lettering can be utilised to emphasise important aspects and to increase the impact of visual images.



(4) Texture

- Texture (dots, lines, squares, etc.) can help to create unity or to emphasise aspects. It can be applied with or without colour or in the place of colour.
- A variety of rub-off type textures or textures on adhesive paper is commercially available. They are easy to use, very neat and effective.



(6) Colour

Colour should be used circumspectly. It nevertheless remains one of the most important elements of a successful visual presentation.

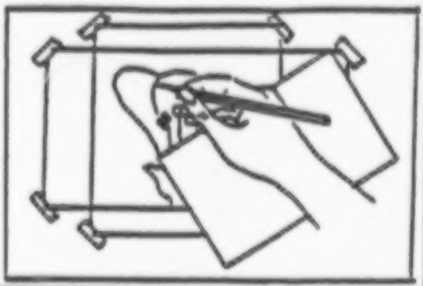
(6) Format

- Use the transparencies horizontally if at all possible so that pupils at the back of the class can also see the bottom portion and so that information is not projected past the sides of the screen.
- The size of the opening in the transparency frame and top of projection table should also be kept in mind when planning a transparency.

2.2.5 Drawings

(1) Pictures or photos of the right size can be traced directly with a permanent felt-tipped pen or technical pens.

HINT: Place a sheet of paper underneath the hand to avoid leaving marks on the transparency.



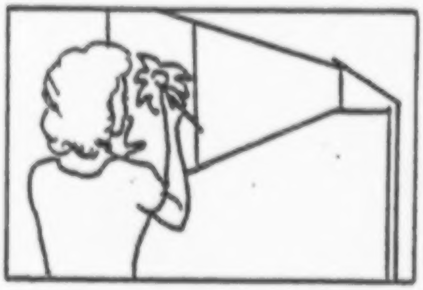
(2) A transparency master can be made by tracing the transparency on a tracing table on to white paper with a soft pencil (HB or B) or indian ink. The master can then be used to make one or more copies with the thermal transparency maker.

N.B. Felt-tipped pens cannot be used to make a master as the ink mostly does not have a carbon base. A photocopy of the drawing, however, can be used as a transparency master.

(3) Enlargement of a picture or map can easily be done by one of the following methods:

(a) Overhead projector method

- Make a thermal transparency (or a traced copy) of the original picture.
- Project the picture against a piece of paper fixed to the wall, as large as required and trace it.

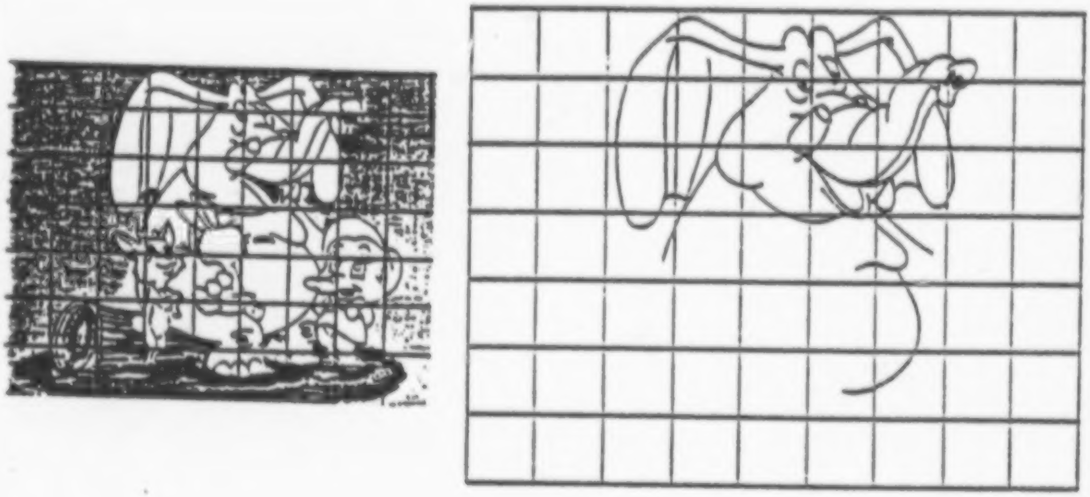


- The size can be altered by moving the projector towards or away from the wall.

87

(b) The squaring method

- The original picture is covered with a grid of equal-sized squares.
- The paper on which the enlarged picture is to be drawn is covered by a similar grid with squares 1,5 - 2 - 3 times as large as those covering the original. (For reducing the size the process is reversed).
- The picture is copied square by square.



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Visual communication is often the most powerful way of assisting the perception, comprehension and retention of information. Visual aids are frequently used to support verbal presentations and this involvement of more than one sense can help make communication more effective.

WILKINSON, 1979 : 10.

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2.2.6 Colour

Colour is an essential element of a well planned and effective transparency. It can be utilised in various ways.

(1) Thermal transparencies that burn a coloured image on to clear background.

- Advantage: A sharp, permanent image is obtained.
- Disadvantage: Only one colour per transparency is possible. For different colours the overlay technique should be used.

(2) Thermal transparencies, that burn a black image on to a coloured background.

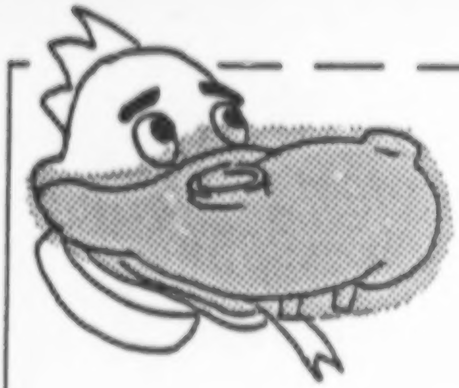
- Advantage: A sharp, permanent image is obtained.
- Disadvantage: Colour blending, when using the overlay technique, limits the number of overlays that can be used on one transparency.

(3) Felt-tipped pens (water base or permanent). Different colours are available. For colouring larger areas broad-tipped pens are best.

- Advantage: More than one colour can be used on a transparency Colour blending and shading are possible.
- Disadvantage: It is difficult to colour, especially larger areas, smoothly and uniformly.

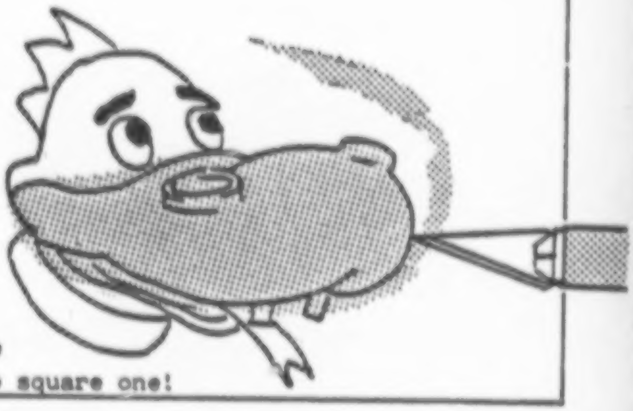
(4) Adhesive colour film is provided with an adhesive layer so that it will stick to transparency materials. Different colours and colour intensities are available.

- Advantage: A neat uniform colour surface is produced and it is easy to use. By overlaying different colours, colours can be mixed.
- Disadvantage: It is relatively expensive and strong colours pasted over lettering or detail can obscure the image or render the lettering illegible.



Method:
- Make a transparency, black on clear material.
- Cut a piece of adhesive film, slightly larger than the shape to be coloured.
- Remove the paper backing and paste the adhesive film over the image drawn or burnt into the transparency.
- Press it down firmly. Try to prevent air bubbles forming.

- With a sharp knife, cut along the outline of the image and remove the excess film.
- Be careful! Too much pressure on the knife will also cut through the transparency, causing the whole shape to fall out, which means back to square one!



(5) Paint

- Colour can also be applied to transparencies in the form of glass paint with a brush.
- Bright colours are available and colour blending is possible.
- Special paint for use on transparencies is also available for the enterprising teacher.

(6) Colour transparencies from pictures.

See article in School Media Centre 2/83 : 26.

2.2.7 Lettering

1. General principles

- Illegible lettering is a waste of time.
- Legibility is determined by:

- Size: **5 mm** for ordinary text, larger for titles or important words or concepts.

- Upper or lower case letters: Upper case letters are used for emphasis and short titles while lower case letters are easier to read and are used more often.

- Letter type: Simple letters with lines of uniform thickness are more legible than **Decorative** letters or those with thick and thin lines.

- Spacing: Letters must be spaced in such a way that they appear even and easy to read. Keep your writing in a straight line.

Lines that are too close together,
are difficult to read.

- Layout:

Lettering can be
centered
in the middle of
the space designed
for writing

or it can be written in the usual manner.

(2) Lettering methods

(1) Handwriting.

- Place a sheet of lined paper underneath the polyester sheet to write in a straight line.
- Print neat letters approximately 5 mm high.
- To write during projection draw thin lines on the polyester sheet with a sharp object beforehand.

(2) Typing

- Ordinary typewriting is normally too small for use on transparencies.
- If a photocopier with an enlarging facility is available ordinary typewriting can be enlarged to an acceptable size.

Typewriters with large type, especially for use on transparencies, are available.

(3) Stencil letters

- Stencils with various letter sizes are available for use with technical pens.
- The letters are neat, legible and, with practice, can be used quickly.

(4) Instant lettering

- Special letters in different colours are available for direct use on polyester sheets.
- Ordinary dry transfer letters can be used on paper to prepare a transparency master.

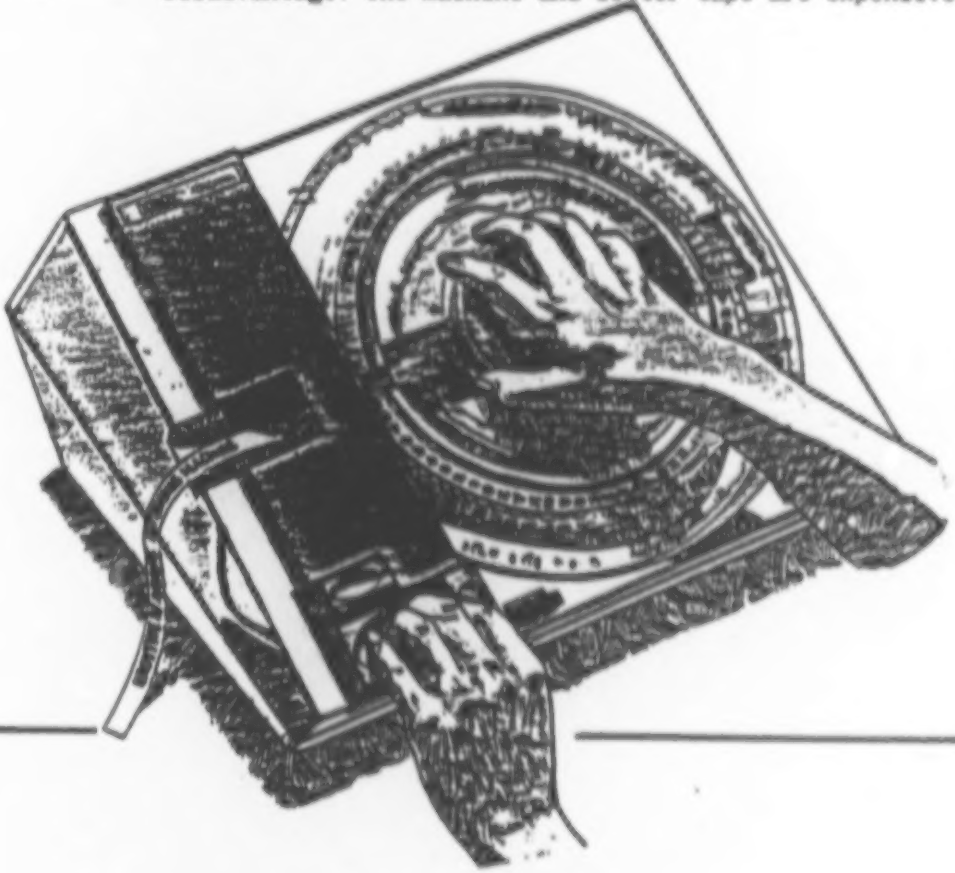
N.B. If you are going to use the thermal process make a photocopy of your completed master and make your transparency from that as the thermal process is apt to lift the dry transfer lettering, rendering your master useless.

Advantage: The letters are available in different sizes and types and they are neat and legible.

Disadvantage: The letters are relatively expensive and wastage occurs because some letters of the alphabet are used up more quickly than others, leaving you with a lot of unused ones.

(5)

- A lettering machine is used to print words letter by letter on self-adhesive tape which can then be pulled off and pasted on to the master. Different letter sizes are available.
- Advantage : Lettering is very neat, spacing or layout is easily adjustable.
- Disadvantage: The machine and letter tape are expensive.



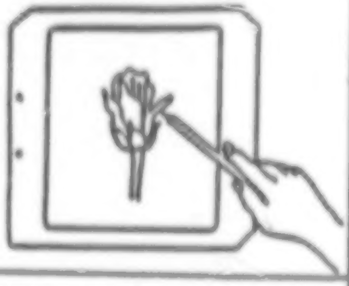
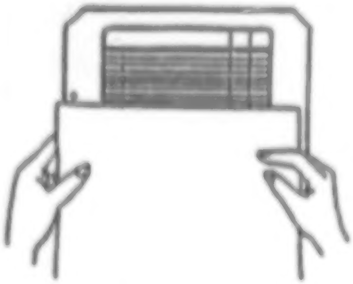
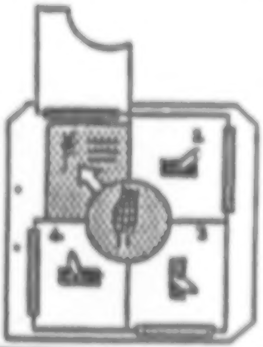
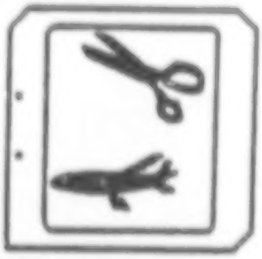
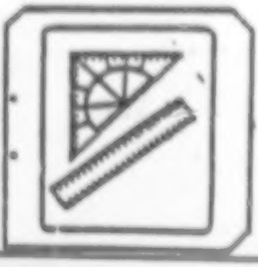
……

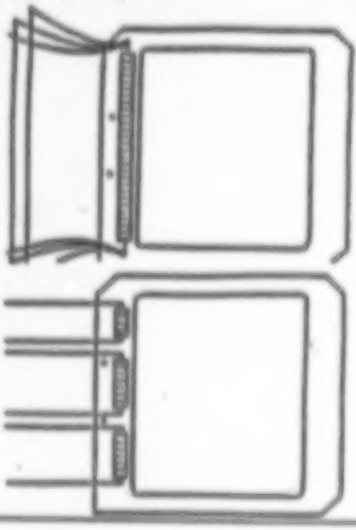
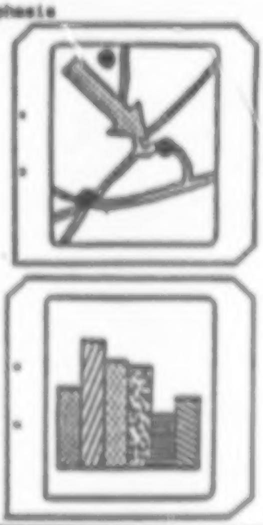
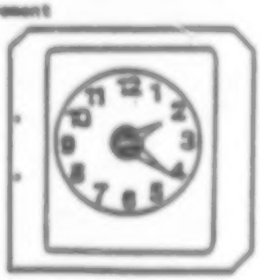
Using overhead transparencies in your presentations will reward you with a feeling of success in communicating ideas and in encouraging the participation of every member of an audience.

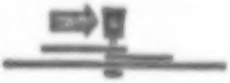
BROWN, J.W. et al. 1983 : 138.

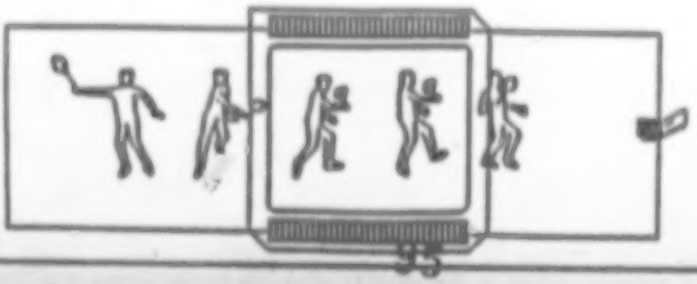
……

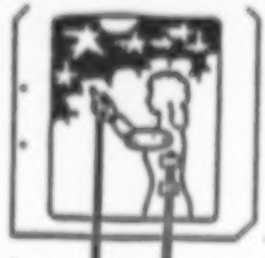
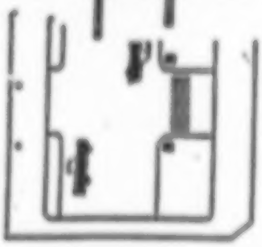
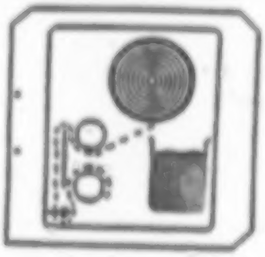
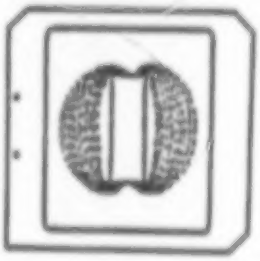
2.3 TECHNIQUES

TECHNIQUE	METHOD	USES
(1) Pointing 	• Use a pointed object eg. a sharp pencil, pen or knitting needle to point out a specific part of the image. • Lay it down on the transparency to avoid distracting movements of the hand. • DON'T point out anything on the screen. • DON'T use your index finger. It appears thick and clumsy on the screen.	• To point out certain features of the image on the transparency.
(2) Revealing and Masking  	• This technique is used to cover parts of the transparency while other parts are revealed step by step. • Ordinary typing or writing paper is suitable. • Paper masks can be attached to the transparency frame in order to reveal parts of the transparency as required. • NOTE: To prevent paper masks from folding back during presentation, glue small weights or coins to them.	• A technique, very useful for presenting summaries, questions and answers, images that should be seen in sequence, series of pictures, quizzes, language teaching and many more.
(3) Silhouette  	• Any solid object with a characteristic shape can be placed on the projection table and projected. • Shapes cut out of paper also form silhouettes. • Translucent plastic rulers, protractors etc. can also be projected during, eg. Mathematics lessons.	• Distinguish geometric forms and other shapes, eg. leaves, leaf edges, etc. • Cut-outs can be moved about to tell a story. • Pupils can plan, make and project shapes of their own.

TECHNIQUE	METHOD	USES
(4) Overlay 	• Images can be systematically built up by laying different transparencies, each containing part of the whole picture, in sequence on top of each other. • The different transparencies are attached to the frame with strong adhesive tape. • Ensure that the images fit exactly onto each other after fixing them to the frame.	Can be used to: • indicate different stages of processes; • add features step by step; • indicate the development of rivers and volcanoes; • illustrate the life cycles of insects; • illustrate anatomy and physiology; • alter a basic image as needed; • to compile a story incident by incident; • etc.
(5) Emphasis 	• Paste a strip of coloured adhesive film over important words and titles or cut openings in a coloured surface through which the word or words to be emphasised are clearly visible. • Symbols eg. arrows or pointing fingers can emphasise certain features. A variety of suitable symbols are available with dry transfer lettering sets. • Statistical information and comparisons can be shown on graphs.	• Emphasise important facts by use of, or absence of colour. • Indicate parts of a whole. • Use of colour gives greater clarity and facilitates distinction of parts.
(6) Movement 	• A turning disc attached through the centre to an eraser or cork with a drawing pin can be used in interesting ways. • A small frame through which a strip of transparency material can slide easily is pasted to the transparency frame. The images on the strip of transparency is then drawn through its frame.	• Movement of hands of a clock, identification, testing, life and seasonal cycles, etc. can be shown effectively. • Movements in sequence, stages of development, a column of mercury in a thermometer and the movement of tides are other potential uses.





TECHNIQUE	METHOD	USES
c. 	C. Human or animal figures cut out of cardboard can be equipped with flexible limbs attached with thread or metal eyelets. Wire attached to the limbs can allow them to be moved.	c. To tell a story, to demonstrate how limbs function as levers, the working of the skeleton and muscles.
d. 	d. Loose shapes can be moved around the transparency or they can be attached to a strip of transparency material and moved about.	d) Traffic situations, movement of an object on a route, eg. ships on a route round the Cape can be demonstrated.
e. 	e. A shape or figure can be cut out of polarised film and pasted on to the transparency. The spinning disc of the polarisation filter, held above the transparency creates the effect of movement.	e. Effective to indicate circulation of liquids or movement of sound waves. However, this technique is relativel expensive and should be used very circumspectly to avoid confusio
	f. Simple working models of eg. machines, gears etc. can be made out of cardboard, balsa wood, perspex, parts of a Meccano set, rubber bands, string and a variety of available materials.	f. To explain the working of a four-stroke engine or other machinery by using an easily understood, simple projected image.
g. 	g. Certain scientific experiments can be projected eg. by placing a magnet on the projector and covering it with a transparency on which filings of iron are sprinkled to illustrate magnetic fields.	g. Can demonstrate magnetism as well as the formation of crystals in a glass container, diffusion of liquids, wave movements in a glass bowl with water, etc.
(7) Transparencies and other visual media		
	Slides can be projected next to a transparency to make comparisons or recognise features.	Compare the photograph of an object with a sketch that shows the structure or perspective in a photograph and a sketch showing the lines and principles of perspective etc.
(8) Transparencies and audio-media		
	Sound recordings can be used with transparencies.	Musical notes can be projected while the music is being played, drawings of objects or animals making sounds can be projected while the sound is played and recordings of lessons can be made for pupils who were absent and wish to listen to the lesson accompanying the transparencies.

2.4 Workshop

2.4.1 Evaluate two of your own transparencies using the evaluation table on page 19.

2.4.2 Each group chooses one or two of the assignments under 1.5.

(1) Plan a transparency after considering the following:
- your aim
- your target group
- size of your target group

(2) Make use of available basic software to carry out your assignment.

(3) Evaluate your group's work and choose the best transparency for the report-back session.

(4) One person from each group shows the chosen transparency and explains its purpose and how it may be used.

For more information see

KEMP J.E. 1908: Planning and producing audiovisual materials; Fourth edition. New York: Harper and Row. (Chapter 22).

ROSSOUW F.P. & VAN LAER A.H. 1978: Oorhoofse projeksie en reprografie. Johannesburg: Perskor. (Chapter 3).

ROSSOUW F.P. & VAN LAER A.H. 1978: Overhead projection and reprography. Johannesburg : Perskor. (Chapter 3).

OVERHEAD PROJECTION SEMINAR

"I HAVE A FEW TRANSPARENCIES TO SHOW..."

(5)

EVALUATION TABLE FOR TRANSPARENCIES

Evaluate two of your own transparencies using the following five point scale.

5. Excellent
4. Very good
3. Average
2. Poor
1. Very poor
0. Not applicable

	Tr. 1 Title .... Subject .... Target group							Tr. 2 Title .... Subject .... Target group						
	0	1	2	3	4	5		0	1	2	3	4	5	
1. Suitability for target group														
2. Clarity of information														
3. Correctness of information														
4. Clarity of main idea														
5. Planning and layout														
6. Simplicity														
7. Lettering: Size, legibility, neatness and simplicity														
8. Drawings: Size, clarity, neatness, simplicity														
9. Use of colour - well considered, striking														
10. Techniques effectively applied (see 2.3)														
11. Visual effectiveness														
12. Medium successfully used														

EVALUATION TABLE FOR TRANSPARENCIES

Evaluate your group's transparencies using the following five point scale.

5.	**Excellent**
4.	**Very good**
3.	**Average**
2.	**Poor**
1.	**Very Poor**
0.	**Not applicable**

	Suitability for target group	Clarity of information	Correctness of information	Clarity of main idea	Planning and lay-out	Simplicity	Lettering	Colour	Drawings	Application of techniques	Visual success	Success of medium	Pupil involvement	Total
Tr.1. Title .... **Subject** .... **Target group**														
Tr.2. Title .... **Subject** .... **Target group**														
Tr.3. Title .... **Subject** .... **Target group**														
Tr.4. Title .... **Subject** .... **Target group**														
Tr.5. Title .... **Subject** .... **Target group**														

Which transparency, in your opinion, is the most successful? ....

Use this transparency for reporting back about your group's work.

2.5 Buying and organising

2.5.1 Basic software

Basic software are P/C items and are debited against the school's annual per capita allowance.

These items are purchased per TED 68 order form on transaction code 98. Items for which contracts exist may be purchased only from the contractor. Copies of the contracts are available at schools. If contracts have not been arranged, items are to be bought to best advantage.

(See Catalogue for the media centre and the notice of contracts published annually.)

2.5.2 Sets of transparencies.

(1) They are expensive and should only be bought to supplement your own production.

(2) Purchasing should be done under guidance of the media committee after an assessment of the requirements has been carried out with the aid of subject/class teachers.

(3) Decide beforehand whether the frequency of use will justify the expense.
(See Procedure for administration of the media centre D).

(4) General Guidelines for the purchase of manufactured transparencies.

- Does the subject really lend itself to the use of transparencies or would a wall chart, poster, picture, slide or other medium perhaps be more suitable?
- Can different techniques be used in the presentation?
- Is technical quality eg. lettering, graphics, colour and mounting of high standard?
- Does the design encourage pupil participation?
- Is too much information crammed into one transparency? Wouldn't a series be more effective? Will the overlay technique and the gradual building of information enhance the effectiveness of the transparency?

- Avoid duplication of transparencies in sets for different standards. It increases cost but not the usefulness of the set.

2.5.2 Organisation and storage.

(1) All transparencies (both purchased and those manufactured by the teacher) are kept in the media centre together with transparency masters where applicable.

(2) Transparencies are acquired, organised according to subjects and indexed for use by subject and class teachers.

(3) Each transparency is marked with an identifying number and/or symbol and kept in a hanging file or ring binder.

(See Procedure for administration of the media centre D).

Welcome
School Superintendents

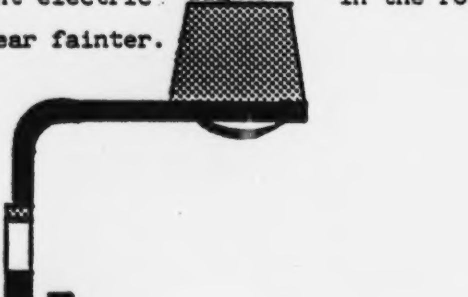
"I'M GLAD YOU ASKED THAT SIR - I'M WITH THE BIG K TEXT BOOK CO. AND I JUST HAPPEN TO HAVE A CATALOG WITH ME."

5.3

The Overhead Projector

projects a beam of bright light through a transparency on to a screen behind the operator. The light is projected by a plastic (fresnel) lens and is then reflected by another lens so that the image falls on the screen.

The bright light makes it unnecessary to darken the room although bright electric lights in the room will make the image appear fainter.

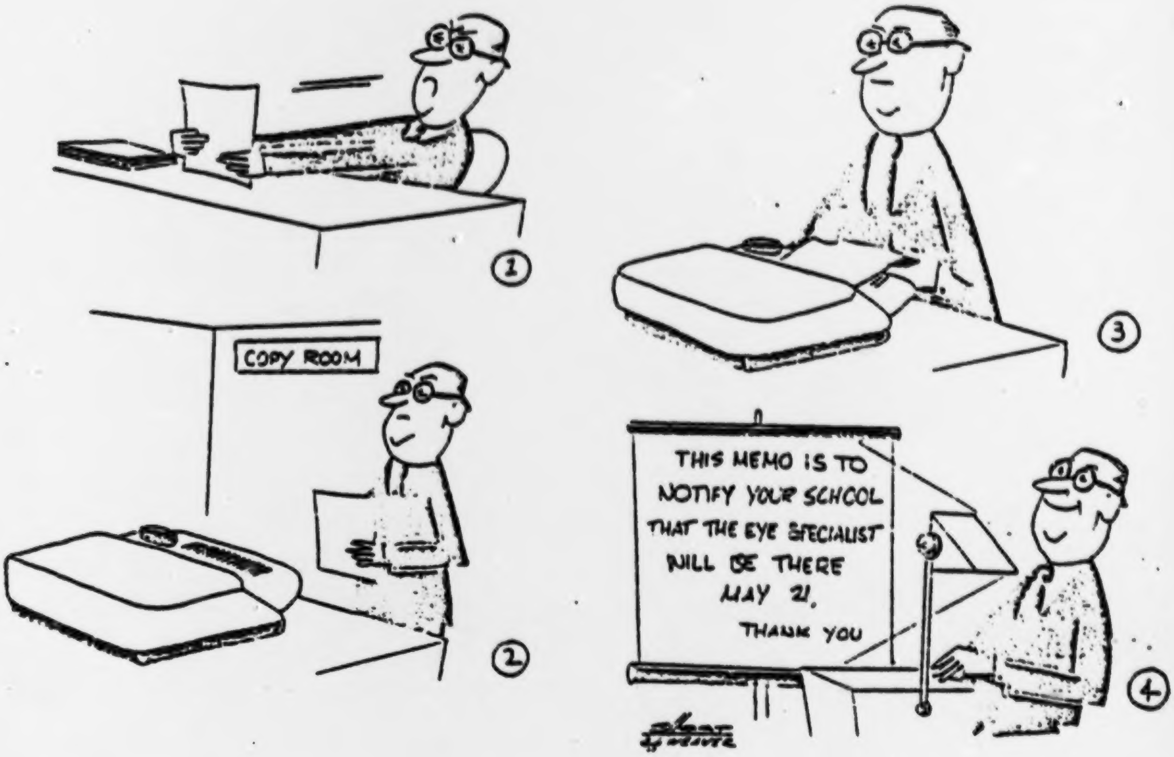


3. The overhead projector

Contents

3.1 Projection
3.1.1 Projection problems
3.1.2 Projection lenses
3.1.3 Projection screen table
3.1.4 Projection angle

3.2 Accessories
3.3 Care
3.4 Basic maintenance
3.5 Purchasing and organising

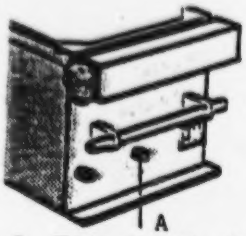

①
COPY ROOM
②
③
THIS MEMO IS TO NOTIFY YOUR SCHOOL THAT THE EYE SPECIALIST WILL BE THERE MAY 21.
THANK YOU
④

3.1 PROJECTION

3.1.1 Projection problems

(1) A yellow or blue edge, particularly around the edges of the projected image.

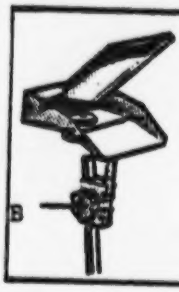
Distance between lamp housing and fresnel lens incorrectly adjusted.



- Press knob A and turn to the left or right to move lamp housing up and down until image is sharply focused.
- Note particularly the edges of the image.

(2) Dull image

Focus distance not properly adjusted.



- Place a transparency on the projector table and switch on.
- Turn focus knob B until the image is sharply in focus.

Lamp housing incorrectly adjusted.

Adjust as explained in (1) above.

Distance between projector and screen.

Sharpness of image can be improved by moving the projector towards or away from the screen.

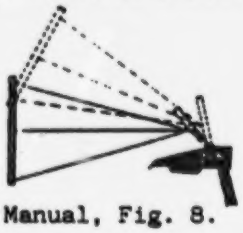
3.1.1 Projection lenses

- By using different lenses a larger image can be projected or the image can be projected over a longer distance.
- The standard lens on an overhead projector is a 320mm lens. A larger image over the same distance can be obtained with a 300mm or a 275mm lens.
- More details can be obtained from your dealer to suit your specific needs.

3.1.3 Projection screen table

Type of Projection Lens	Focal Length	Projection Distance				
		1 m	1,5 m	2 m	3 m	4 m
		Width of Image Metres				
Single Lens System	275 mm	0,85	1,4	1,9	3,0	—
Single Lens System	300 mm	—	1,25	1,76	2,7	3,8
Single Lens System	320 mm	—	1,15	1,6	2,3	3,4
Three element lens	317 mm	0,68	1,12	1,6	2,3	3,4

The projection lens mirror can be tilted to suit your preferred screen height as illustrated

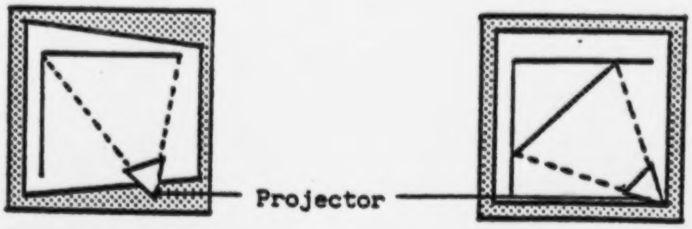


E T A , s.j. : 19 : Overhead Projector Manual, Fig. 8.

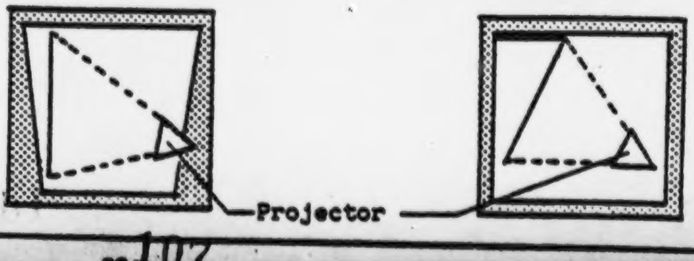
3.1.4 Projection angle

Keystone formation occurs when the image is not projected on to the screen at 90°

Horizontal
keystone distortion

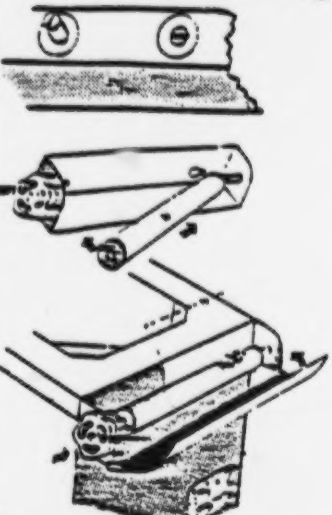


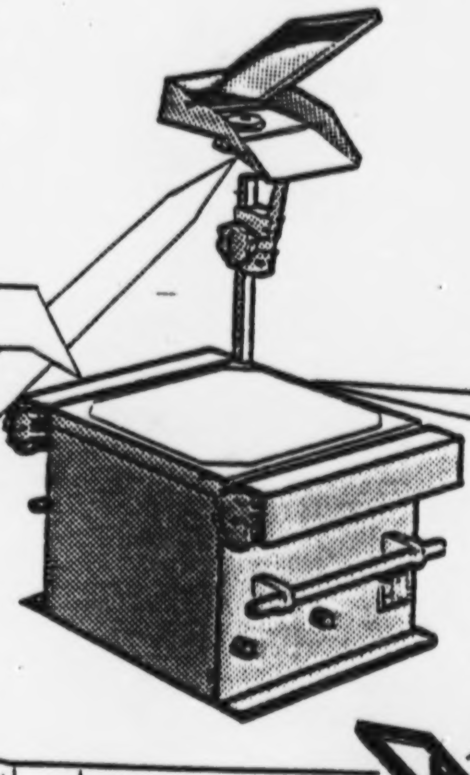
Vertical
keystone distortion

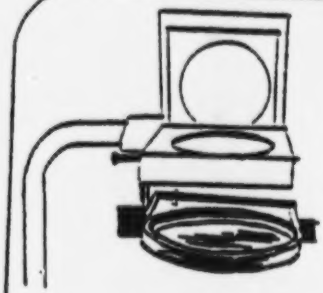


3.2 ACCESSORIES

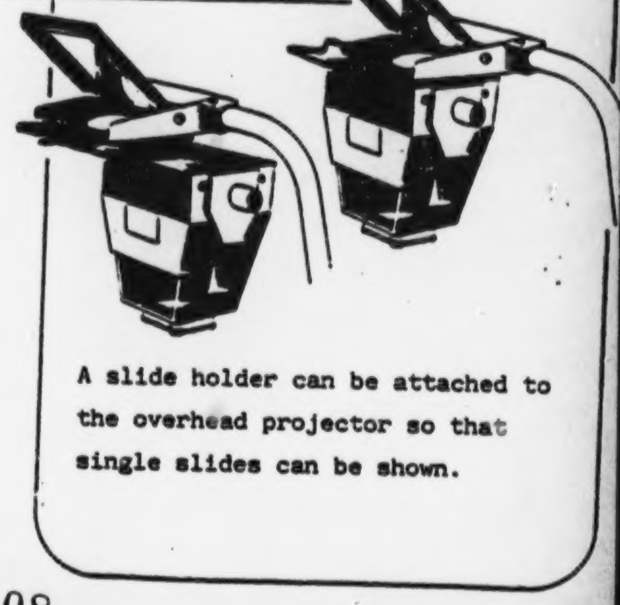
A fitting with a roll of transparency material is fitted to the projector and is used like a chalkboard. Texts or notes written on the roll beforehand can be brought into position during the lesson by turning a knob or handle.







A turning polarisation filter disc (electrical or manually operated) can be fitted to the projector to simulate movement on a part of the transparency which has been covered with polarisation material.



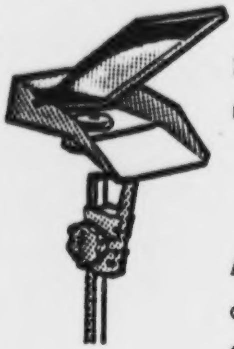
A slide holder can be attached to the overhead projector so that single slides can be shown.

3.3 CARE

To ensure good service from your projector the lenses and glass fittings should be kept clean.

The transparency stage

- **Use a chamois cloth and clean water to clean.**
- **A window cleaning liquid can also be used.**

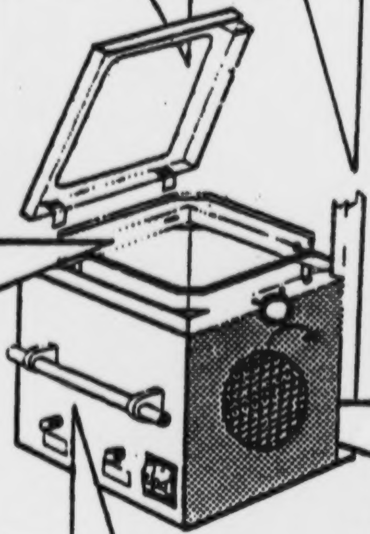


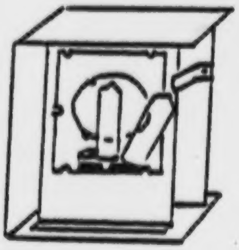
Projection lens and mirror

A chamois cloth and clean water are used to remove the dust.

The Fresnel lens

- **Lift the transparency stage**
- **Remove the Fresnel lens and wipe the dust off with a damp chamois cloth.**
- **Use only water, as a cleaning fluid may damage the lens.**





Condenser lens

Remove the dust with a chamois cloth and clean water before the Fresnel lens and transparency stage are replaced.

Projector housing

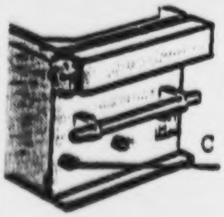
Clean with a soft cloth or chamois and detergent.

N.B. The Overhead projector may not be moved or transported while the lamp is hot - it shortens the life of the lamp considerably. Cover the projector with a fabric or plastic cover to protect it against dust while not in use.

3.4 BASIC MAINTENANCE

(1)
Lamp won't burn

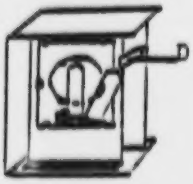
Lamp fused



(1) Switch off at wall socket.

(2) Pull C to bring emergency lamp into position
or

(3) Replace the lamp as follows:



Lift the transparency stage and Fresnel lens. Press spring clip off lamp housing, D, to the right and lift the condenser lens.

- Remove the lamp situated directly above the mirror.
- Replace with a new lamp for Vista Varia and ensure that it is firmly fixed.

N.B. Handle lamp with the provided protective material or a handkerchief NEVER WITH BARE FINGERS.

Fuse blown

Replace fuse

(2) Projector overheats

(a)
Fan won't turn because:

Fan blade is stuck

Lift the transparency stage and release the stuck fan blade

Fan motor is burnt out

Have the motor replaced by a trained technician

(b)
Vent is closed

Remove the object blocking the vent so that air can circulate freely

(c) Transparency stage covered by opaque object while lamp is switched on

Remove object, switch off and allow to cool.

The lamps of older projectors can be replaced by "cold lamps" to eliminate overheating.

3.5 PURCHASING AND ORGANISING

3.5.1 Purchasing

(1) Audio-visual hardware, supplied as extraordinary items (B|E) to schools, is listed in the Catalogue for the media centre. From 1984 onwards schools are to complete a preliminary budget form stating the hardware needed for the ensuing book year. If the quotas laid down in the catalogue are exceeded reasons should be given.

(2) Schools buying hardware from school funds are requested to inform the Education Media Service so that the record of hardware in possession of schools can be amended.

(3) If hardware supplied by the TED becomes unserviceable it should be written off on forms TED 100 and TED 405 and sent, together with a report from the firm who does repairs for your school, to the local School Board, who in turn will refer it to Education Media Service. Requisition TED 67 is completed for replacement of the hardware.

(4) Occasionally the TED will supply hardware to schools without their having budgeted for it. The allocation of such equipment is determined by the requirements of schools as reflected by their record of hardware which is kept by the Education Media Service, and in accordance with quotas recommended in the Catalogue.

3.5.2 Organising

(1) A stock register sheet (example attached) must be completed for each item of hardware, and kept in a ring binder. This stock register is kept in addition to the TED 4 which should reflect the total stock of a specific type of hardware in the school.

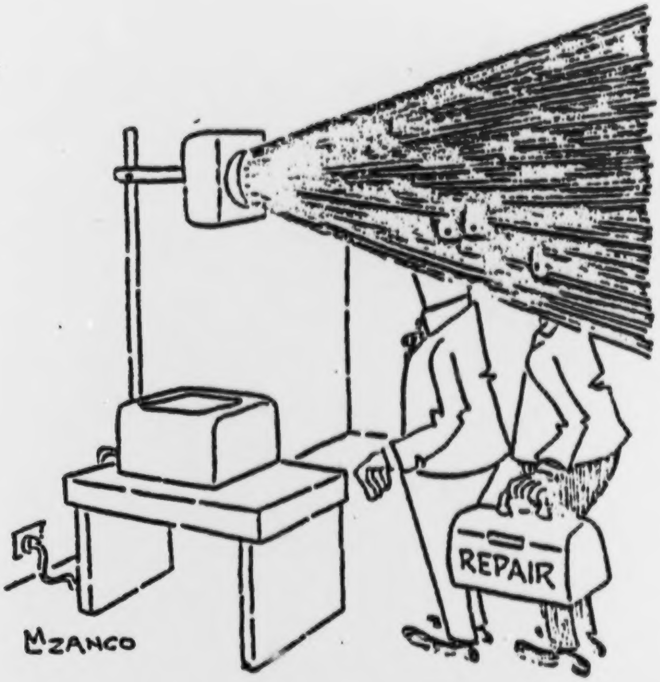
(2) Hardware supplied by the TED should be marked TED, and that bought from school funds or donations with TEDS.

(3) Write the name of the school as well as the symbol (e.g. OHP for overhead projector) and the acquisition number (e.g. 10) on adhesive tape and attach it to the machine.

(4) Manuals and directions for use are filed separately. Synoptic directions for use are attached to each machine.

(5) Keep a stock of lamps for each type of projector for basic maintenance.

(Refer also Information Guide no. 8 : The Administration of the Media Centre, D2 and D).



"WHAT SEEMS TO BE THE TROUBLE?"

STOCK REGISTER FOR HARDWARE

A. PARTICULARS:

1. MAKE: ....
2. SYMBOL AND ACQUISITION NO.: ....
3. CATALOGUE NO. .... 4. PRICE ....
5. SERIAL NO. .... 6. MODEL NO. ....
7. GUARANTEE CERTIFICATE NO. ....
8. FIRM .... 9. TELEPHONE ....
10. ACCESSORIES ....
11. DATE OF RECEIPT ....
12. DATE WRITTEN OFF ....

B. MAINTENANCE

DEFECT	FIRM	DATE DESPATCHED	RECEIVED BY	DATE RETURNED	COST

DATE OUT	NAME SIGNATURE	PLACE	ADDRESS	DATE RETURNED INITIAL	STOCK TAKING

BRONNELYS / SOURCE LIST

BROWN, J W, LEWIS, R B & HARCLEROAD, F F 1983 AV instruction technology, media and methods. 6th ed. New York: McGraw-Hill.

KEMP, J E 1980 Planning and producing audiovisual materials. 4th ed. New York: Harper & Row.

MINOR, E & FRYE, H R 1970 Techniques for producing visual instructional media. New York: McGraw-Hill.

ROSSOUW, F P & VAN LAER, A H 1978 Oorhoofse projeksie en reprografie. Johannesburg: Perskor.

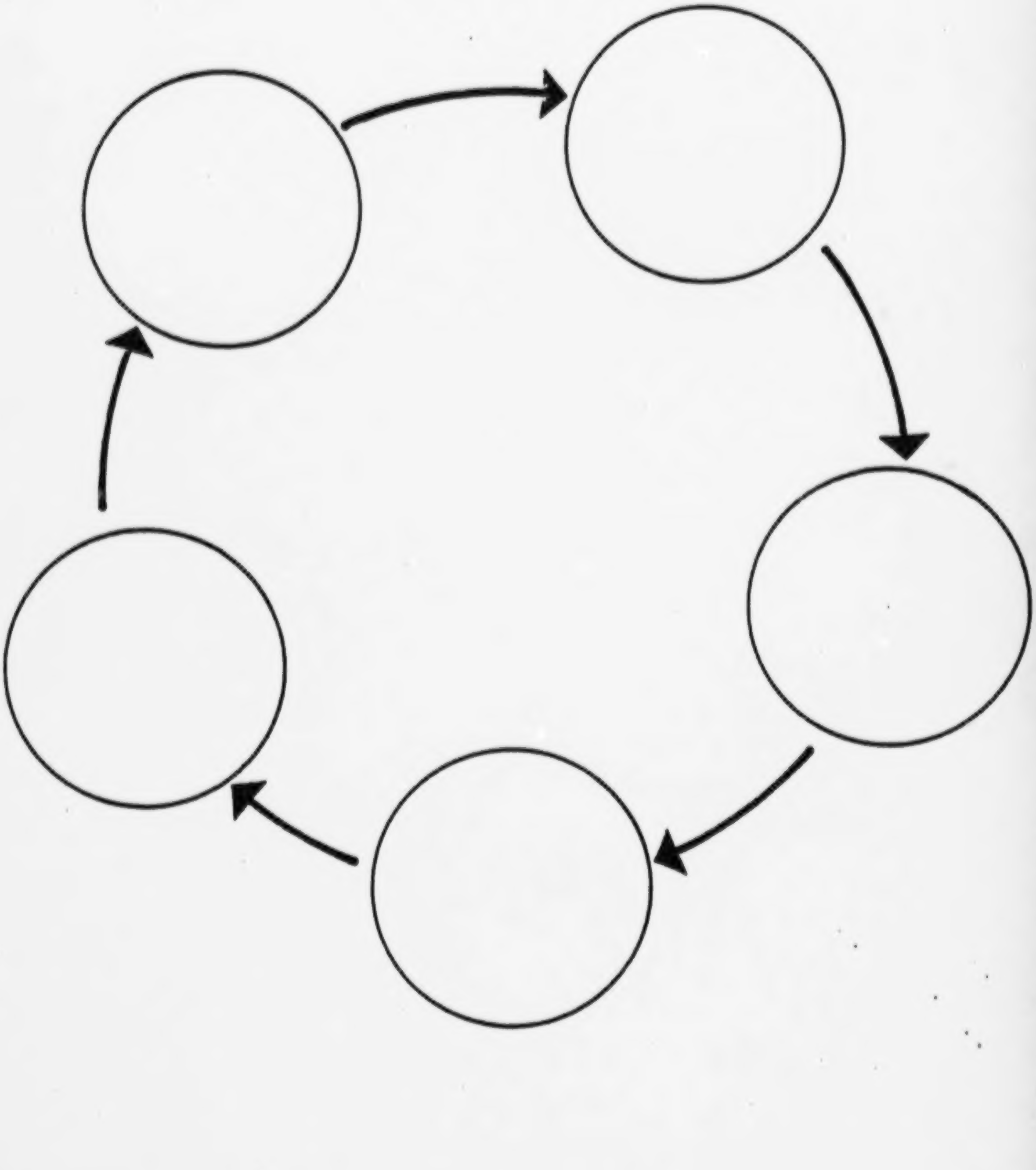
ROSSOUW, F P & VAN LAER, A H 1978 Overhead projection and reprography. Johannesburg: Perskor.

WILKINSON, J 1979 The overhead projector. London: The British Council.

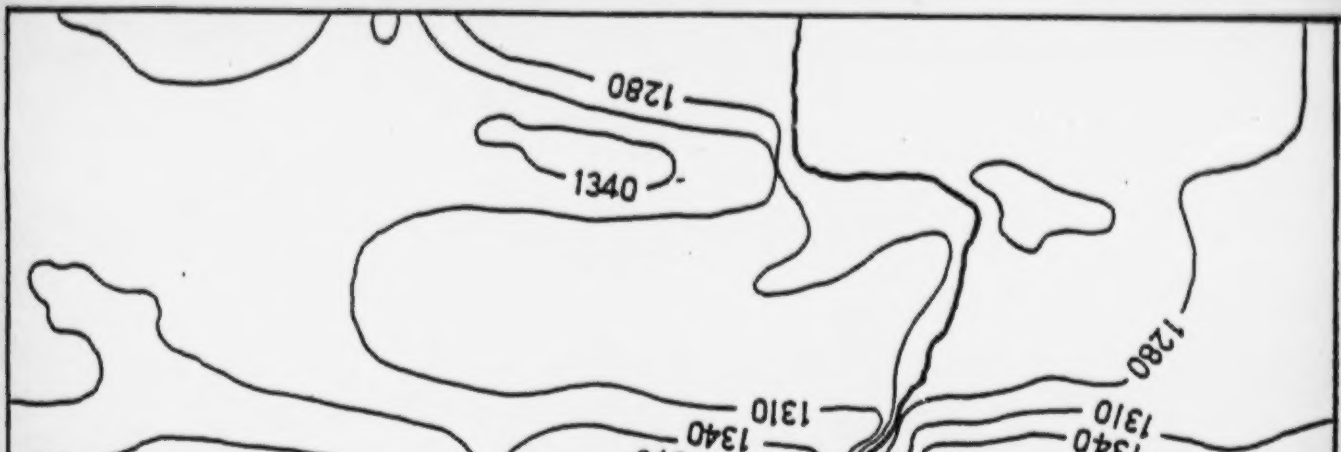
WITTICH, W A & SCHULLER, C F 1979 Instructional technology, its nature and use. 6th ed. New York: Harper & Row.

BYLAE TOT LESING 5

ANNEXURE TO LECTURE 5

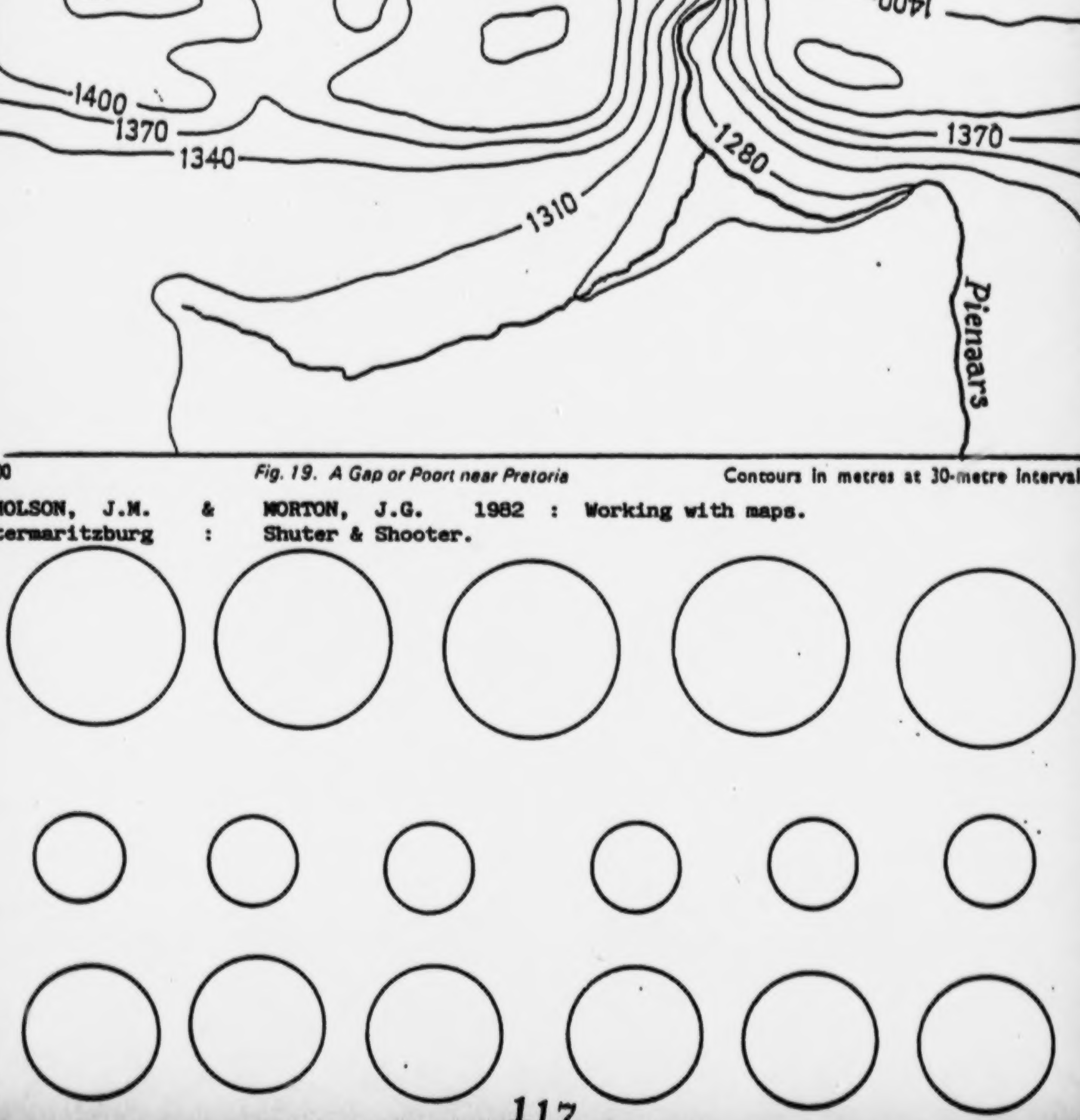


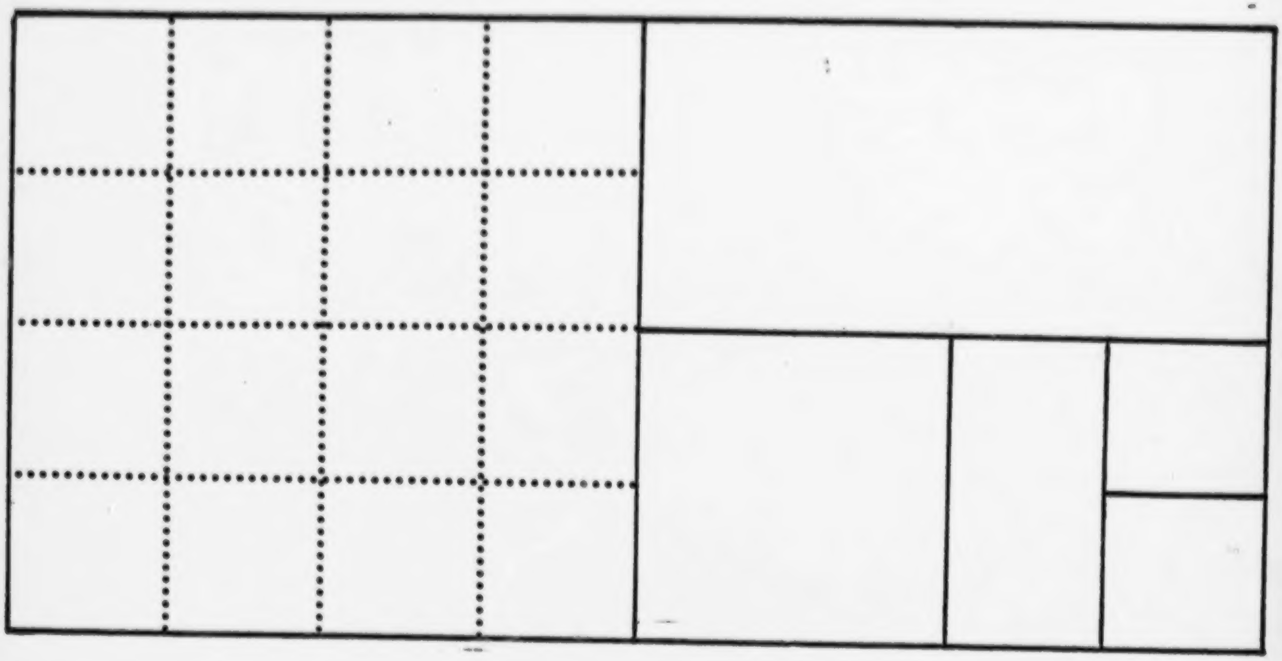
116

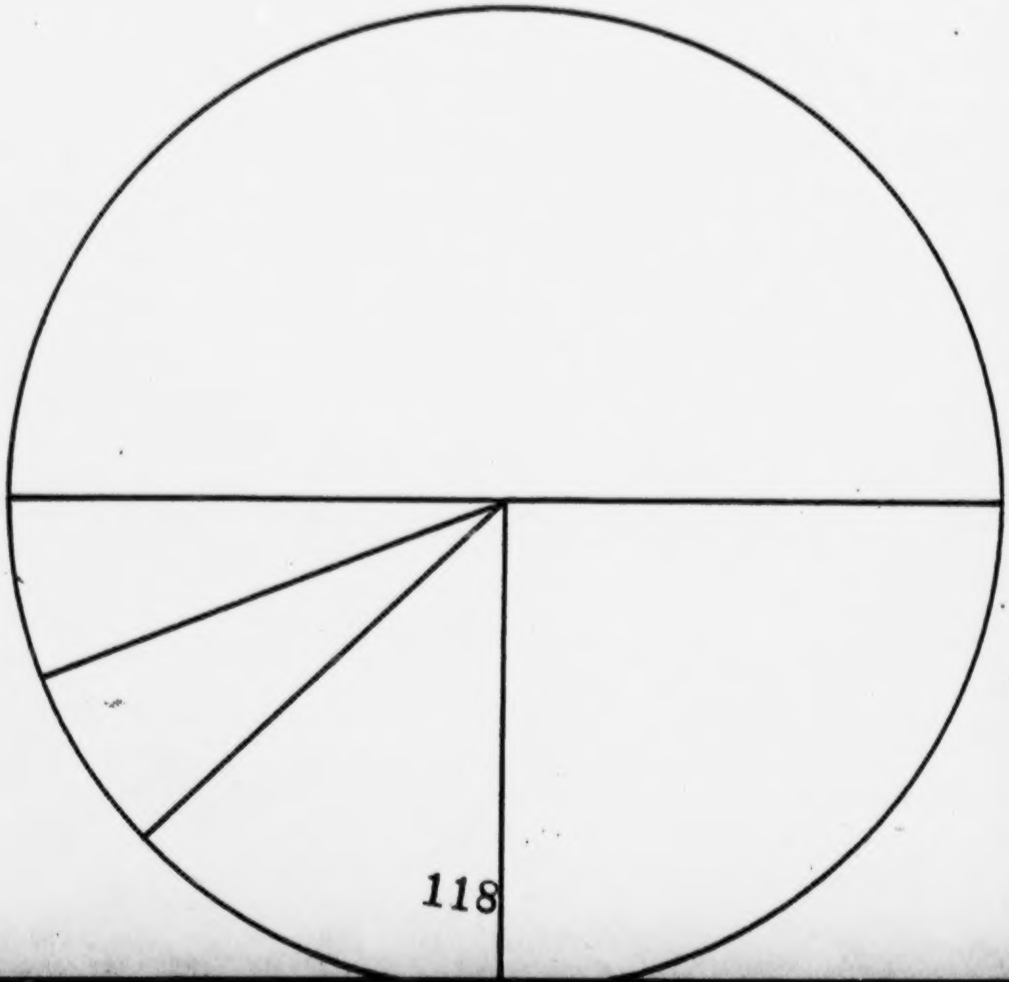

1280
1340
1280
1310
1340
1370
1400
1310
1340
1400
1400
1370
1340
1370
1280
1310
Pienaars

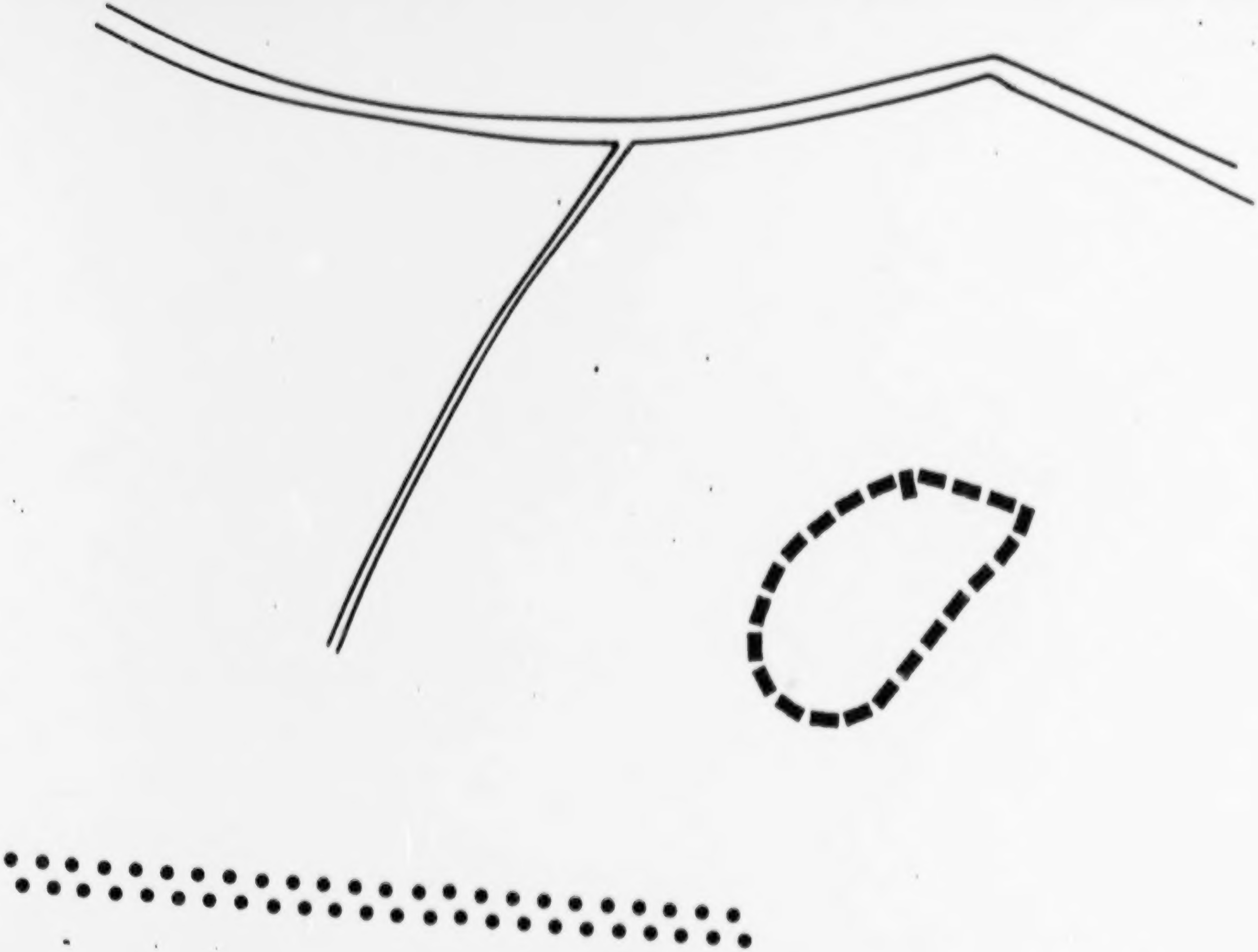
1:25 000 *Fig. 19. A Gap or Poort near Pretoria* Contours in metres at 30-metre intervals

**NICHOLSON, J.M. & MORTON, J.G. 1982 : Working with maps.
Pietermaritzburg : Shuter & Shooter.**

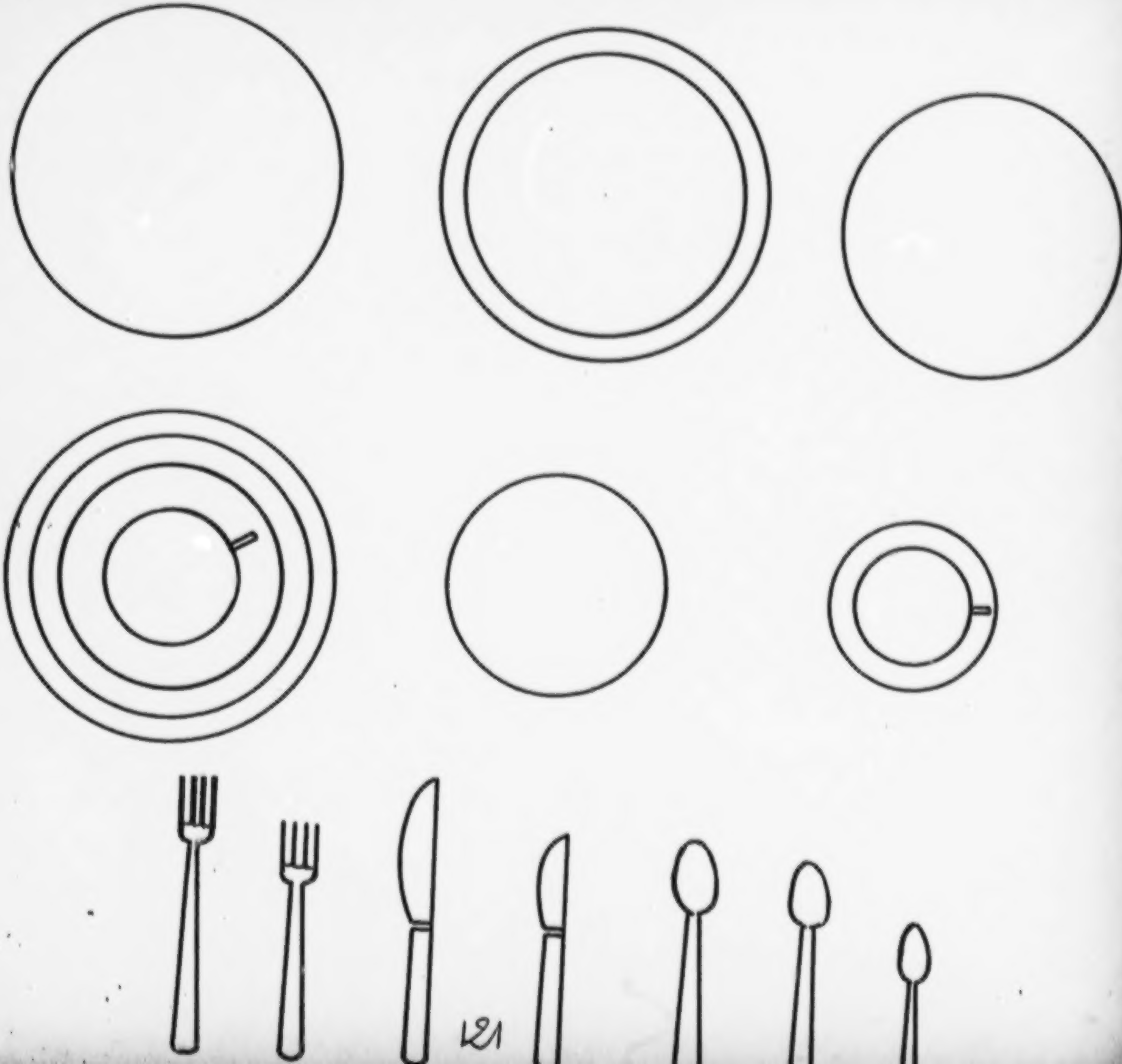




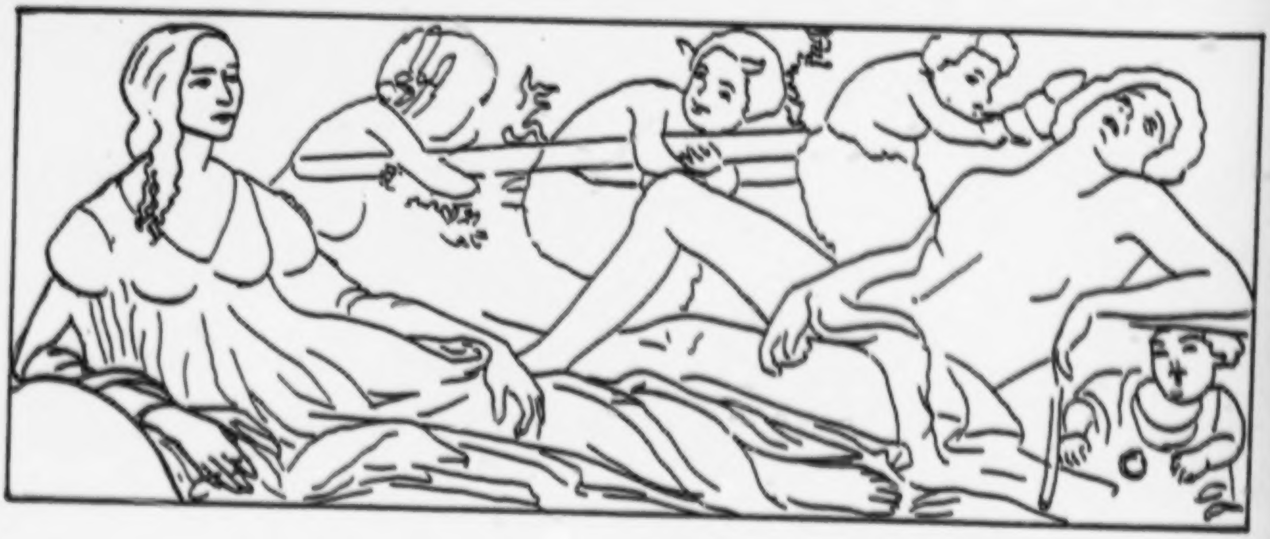


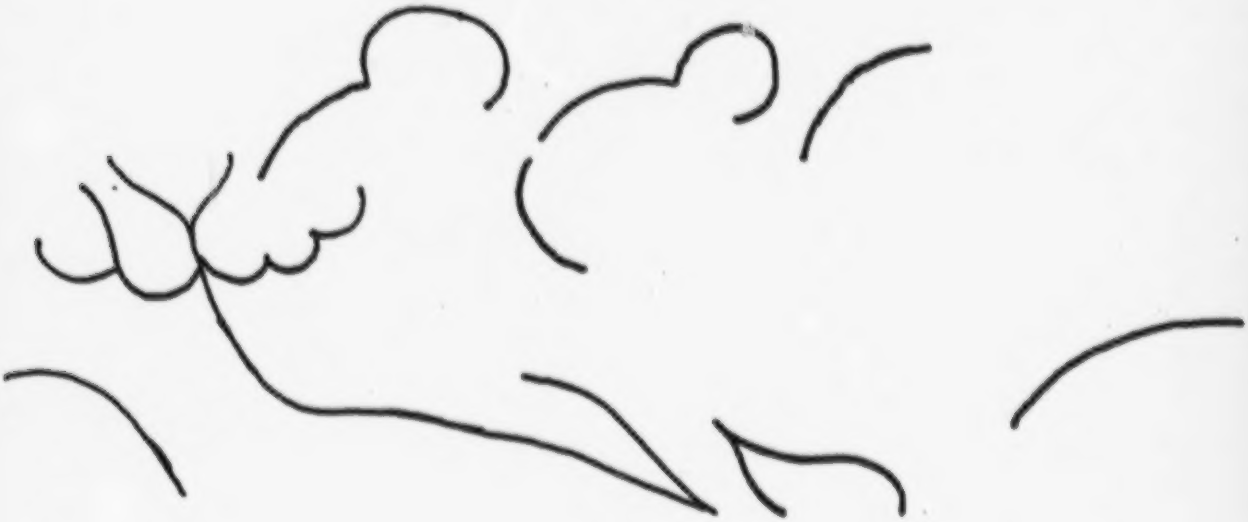


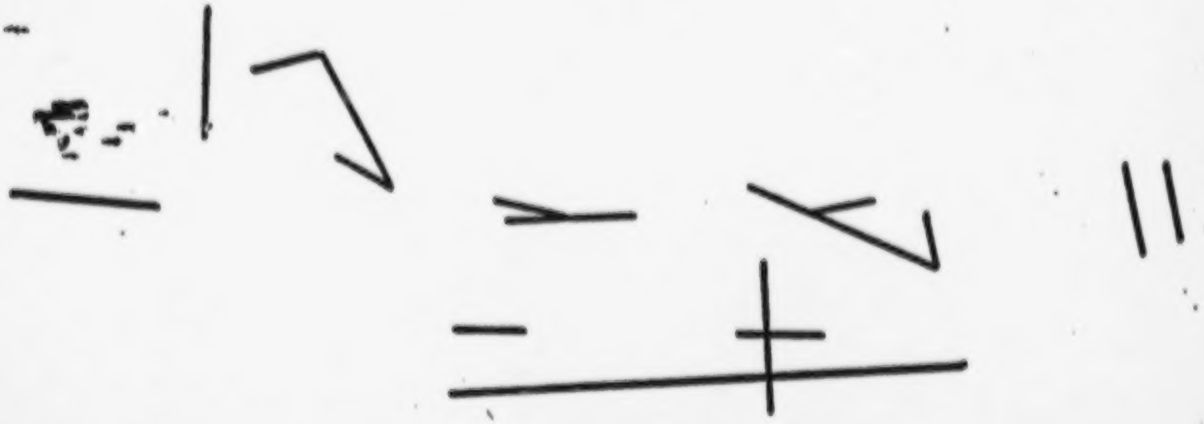
Aangepas uit:
Adapted from: MULLER, C.F.J. 1978 : Die groot trek in beeld. Kaapstad : Tafelberg.



121







Uit:
From: MALINS, F. 1980 Understanding paintings. Oxford : Phaidon.

Beraamde Wêreldbevolking, 1650 tot 2000

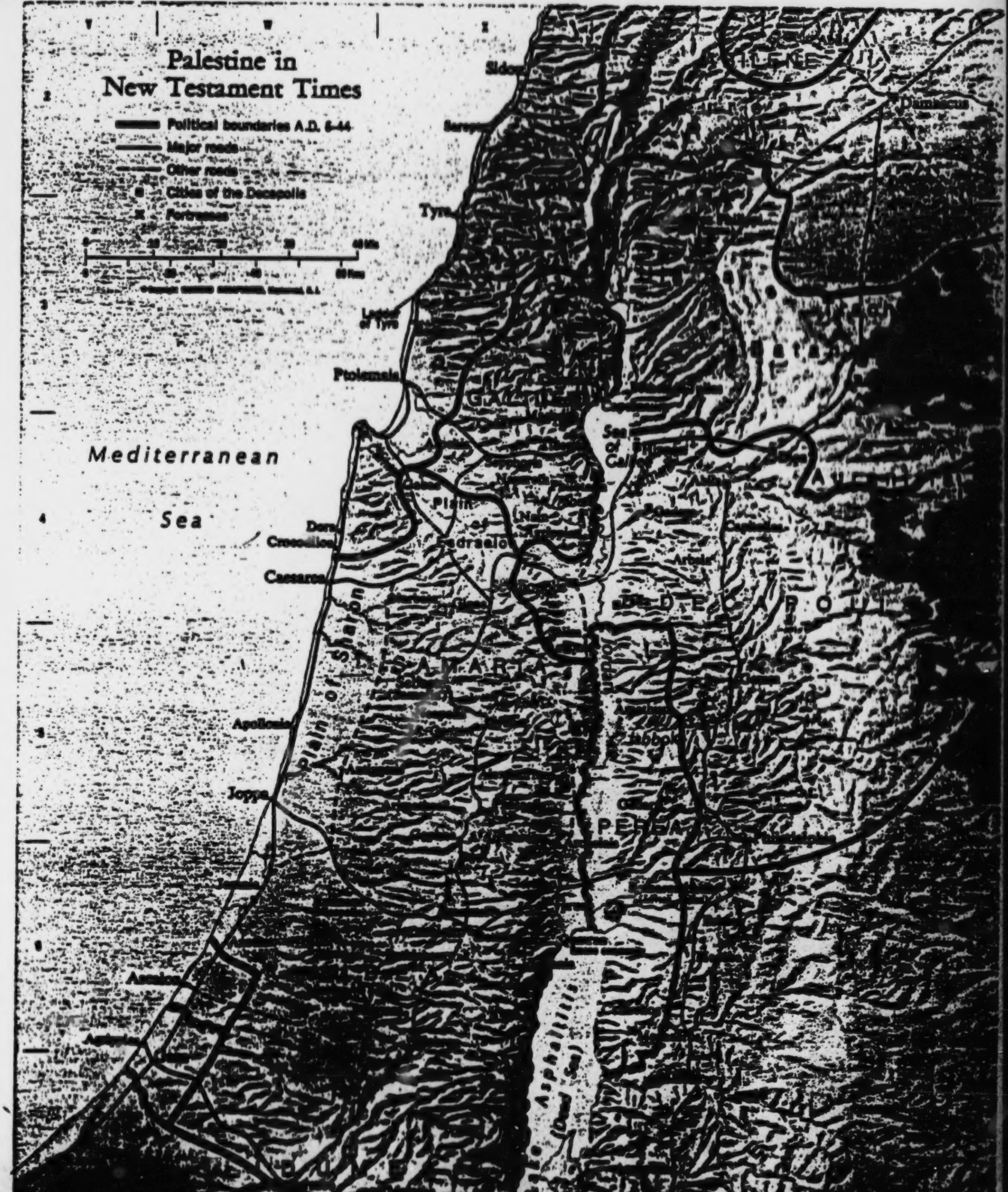
Estimates of World population, 1650 to 2000

(Alle syfers is in miljoene)
(All figures are in millions)

1650	508
1750	711
1800	912
1850	1131
1900	1590
1920	1811
1930	2015
1940	2249
1950	2509
1960	3008
1970	3610
1975	3967
2000	6214

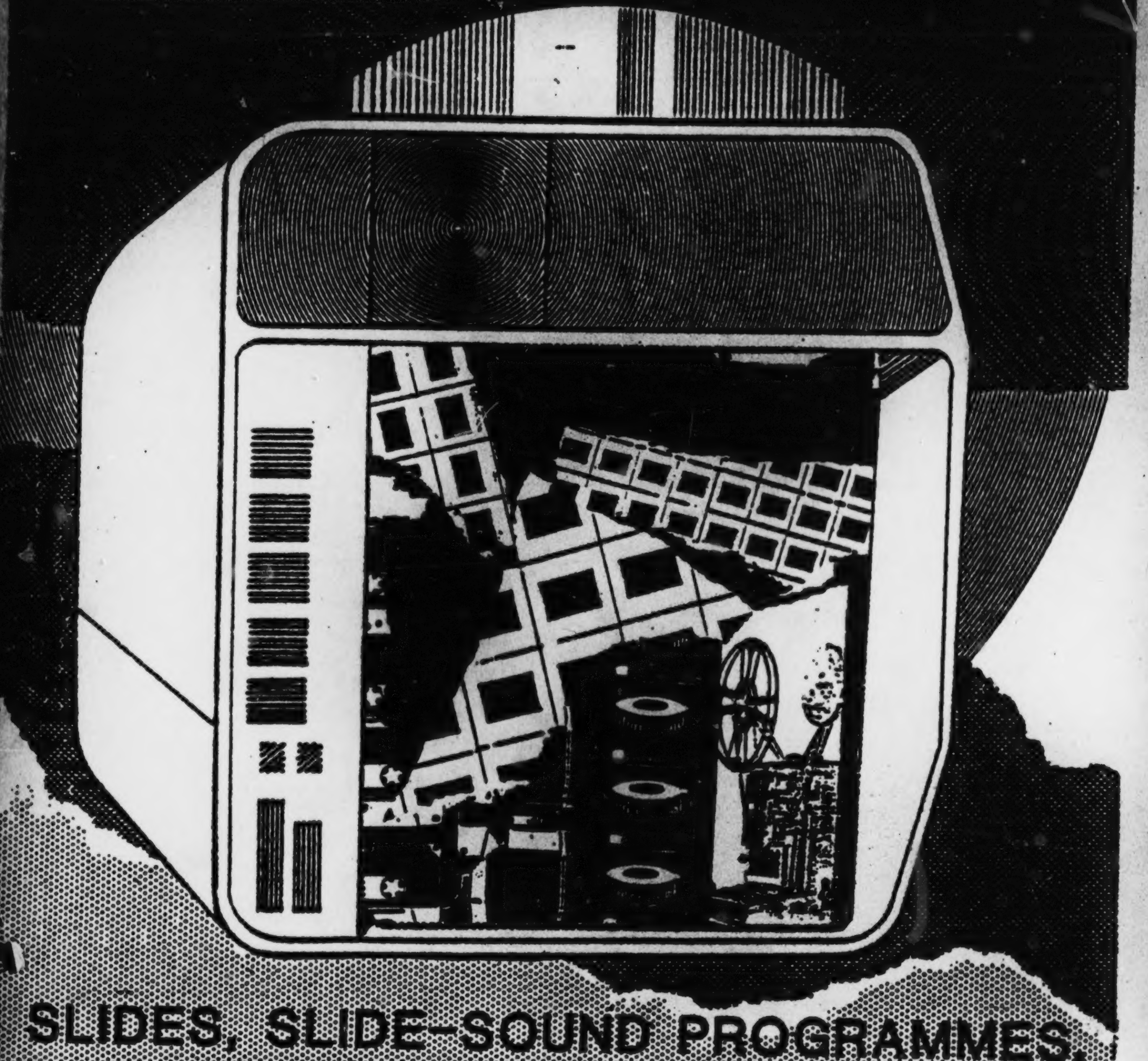
Encyclopedia Americana V.22

B-20


Palestine in New Testament Times
Political boundaries A.D. 6-44
Major roads
Other roads
Cities of the Decapolis
Fortresses
Sidon
Sarepta
Tyre
Ladder of Tyre
Ptolemais
Mediterranean
Sea
Dora
Crocodilon
Caesarea
Plain of Sharon
Apollonia
Joppa
Ascalon
Damascus
ABILENE
GALILEE
Sea of Galilee
Plain of Esdraelon
SAMARIA
DECAPOLIS
Jabbok
PEREA
Asphaltitis (Dead Sea)
IDUMEA

FRANK, H.T. (Ed.) 1977 : Atlas of the Bible lands. New Jersey: Hammond.

LECTURE 6



SLIDES, SLIDE-SOUND PROGRAMMES, FILMSTRIPS AND FILMS

TRANSVAALSE ONDERWYSDEPARTEMENT
TRANSVAAL EDUCATION DEPARTMENT

ORIËNTERINGSKURSUS: ONDERWYSMEDIA
ORIENTATION COURSE: EDUCATIONAL MEDIA
1984

6. SLIDES, SLIDE-SOUND PROGRAMMES, FILMSTRIPS AND FILMS

Mr E S J van Graan, Senior Adviser
Education Media Service

AIMS

By the end of the course you should know:

- the basic principles of media selection;
- how to apply media selection in practice;
- the potential uses of slides, slide-sound programmes, filmstrips and films in education;
- how the different projectors function and how to use them;
- basic principles;
- how to make a slide-sound programme; and
- how to care for and maintain projectors; and the basic principles of electricity involved.

CONTENTS

1. Introduction p 1
2. Media selection p 3
    2.1 Principles of media selection p 3
    2.2 Selection of visual media p 7
    2.3 Practical considerations in selection p 11
3. Know the ABC of slide-filmstrip projectors, slide-sound projectors and 16 mm projectors p 15
    3.1 The uses of slides, slide-sound programmes, filmstrips and films p 15
    3.2 The slide-filmstrip projector p 18
    3.3 The slide-sound projector p 28
    3.4 The 16 mm film projector p 39
4. Projection principles p 43
5. Photography and graphics p 53
6. The manufacture of slide-sound programmes p 77
7. Care and maintenance p 93
8. Basic electricity p 96
9. Acquisition and organisation p 106

1. INTRODUCTION

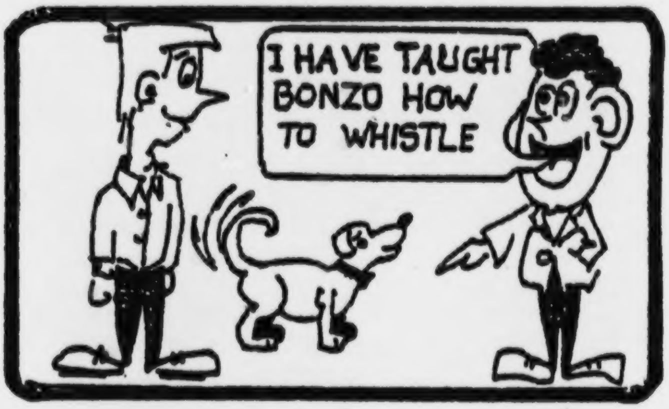
The approach and attitude of teachers towards the use of media in education vary. Some bubble over with enthusiasm, others are aloof and suspicious; yet another one sees it as a magic wand that will enable him to accomplish everything or as just another load he will have to shoulder. But no matter how you regard it, technological development has provided a variety of educational media, which is invaluable, provided it is used responsibly and effectively.

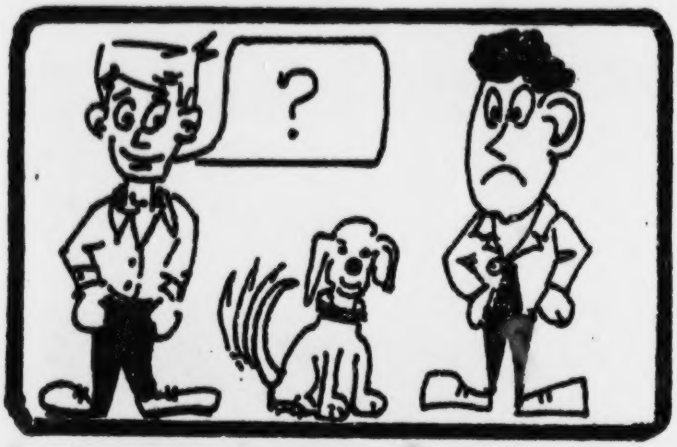
> *"(1) That as a policy decision educational technology be accepted as a fundamental factor in the planning, development and implementation of educational provision at all levels, both in the formal and non-formal sector.*
>
> *(2) That, in order to expedite the extension of educational technology in solving problems confronting education, the concepts of educational technology form one of the bases of pre and continuing training of all categories of personnel involved with teaching, training and extension services."*
>
> (HSRC, 1983 : 171)

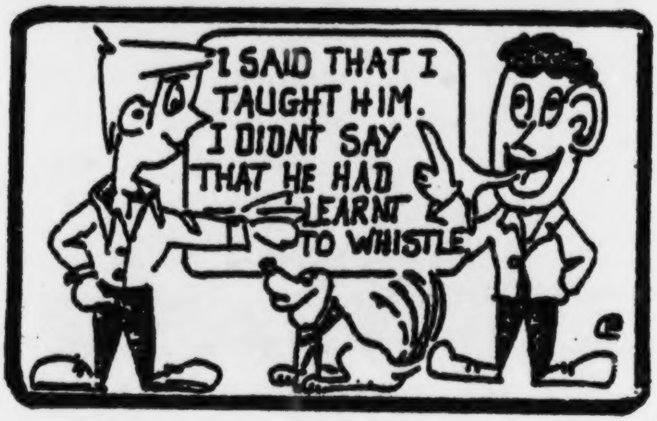
Because schools would like to keep their end up in this respect, teachers are sometimes compelled to use hardware just to keep pace with technology. We are convinced however, that this approach, no matter how well intended, causes more harm than good. It can cause aversion and discredit the use of media or even reduce it to the level of ridicule when it is employed as window dressing during class inspections. Slides, slide-shows and slide-sound programmes especially lend themselves to this form of abuse.

We will endeavour to reveal the true worth and place of projection media in education so that they may be integrated into the presentation of lessons in a responsible and sensible way. *"There is hardware - the equipment; there is software - the materials; and there is underware - the preparation"* (NAVAC 1982 : 37). Attention is given to all these aspects but with special emphasis on slides and slide-sound programmes. *"In both the United States and Europe the expenditure for slides has overtaken that for motion pictures and video, and they are now the primary audio visual medium."* (Sunler, 1981 : 9).

The teacher who is exploiting the limitless potential of educational media from his own conviction is indeed heading for responsible, purposeful and effective use of media. This implies of course that pupils will also discover the inherent potential of media use and apply it to think, to learn and to act independently.


I HAVE TAUGHT BONZO HOW TO WHISTLE




I SAID THAT I TAUGHT HIM. I DIDNT SAY THAT HE HAD LEARNT TO WHISTLE

2. MEDIA SELECTION

2.1 Principles of media selection

- 2.1.1 Point of departure
- 2.1.2 Basic principles
- 2.1.3 Learning objectives
- 2.1.4 Evaluation
- 2.1.5 Workshop

2.2 Selection of visual media

2.3 Practical considerations when selecting slide-sound programmes, slides, filmstrips and films

2.1 Principles of media selection

2.1.1 Basic premise

A Golden Rule

> *"A medium of instruction should be selected and used on the basis of its potential for facilitating accomplishment of the stated objectives or instructional purpose".*

The basic idea of media selection is that a situation should be created which promotes the achievement of objectives.

2.1.2 Basic principles for media selection

A few basic principles should always be kept in mind when selecting media.

(1) No single medium is suitable for all purposes.
(2) Never use a medium simply because it is available.
(3) Don't expect to be able to use a single medium for all aspects of a lesson. Select other media as specific lesson objectives require them.

(4) Some media can be employed for various purposes depending on the objectives.

(5) Be acquainted with the techniques for using a medium as well as the content it can convey.

(6) Media selection should be followed by continuous evaluation of the chosen medium in order to achieve a certain aim.

(7) Characteristics of both the learner and the task should be borne in mind.

(8) Preference for certain media should not distract the teacher from using the appropriate medium.

(9) The use of media can be rendered ineffective by insufficient facilities or poor environmental conditions.

(10) Every medium has certain unique characteristics which make it the most suitable medium in a certain situation.

GENERALIZED SUMMARY OF MEDIA CHARACTERISTICS

	COST	PACING (FIXED, FLEXIBLE)	SEQUENCING (FIXED, FLEXIBLE)	GROUP SIZE (LG, SM, IND)	VISUAL (YES, NO)	MOTION (YES, NO)	AUDIO (YES, NO)	NO. TITLES COMMERCIALLY AVAILABLE (LG, SM, MED)	REQUIRES PRESENTATION DEVICE (YES, NO)
Printed Materials	Lo	Flex	Flex	Lg/Sm/Ind	Yes	No	No	Lg	No
Filmstrips	Lo	Flex	Fix	Lg/Sm/Ind	Yes	No	No	Lg	Yes
Slides	Lo	Flex	Flex	Lg/Sm/Ind	Yes	No	No	Sm	Yes
16mm Films	Hi	Fix	Fix	Lg	Yes	Yes	Yes	Lg	Yes
8mm Films	Med	Fix	Fix	Sm/Ind	Yes	Yes	No	Sm	Yes
8mm Film Loops	Med	Fix	Fix	Sm/Ind	Yes	Yes	No	Sm	Yes
Overhead Transparencies	Lo	Flex	Flex	Lg	Yes	No	No	Sm	Yes
Audio Recordings	Lo to Med	Fix	Fix	Lg/Sm/Ind	No	No	Yes	Sm	Yes
Video Recordings	Hi	Fix	Fix	Lg/Sm/Ind	Yes	Yes	Yes	Sm	Yes

Diagram 1 : (Jonassen, 1982 : 376)

2.1.3 Learning objectives

The use of media varies according to the extent that it contributes to specific learning objectives. Thus, the teacher should be familiar with the functions that the various media can fulfil in the achievement of learning aims.

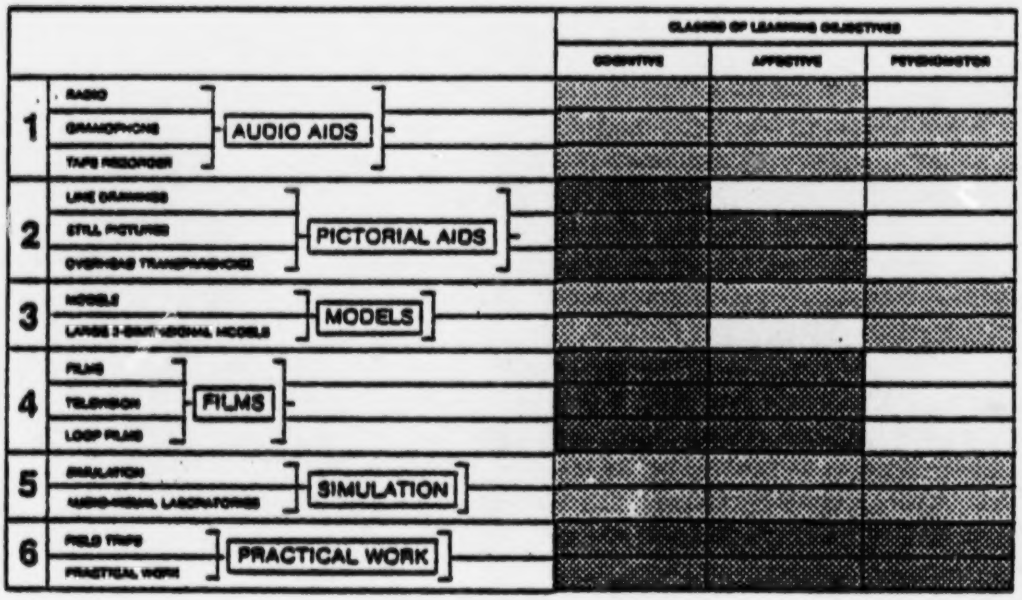

CLASSES OF LEARNING OBJECTIVES
COGNITIVE
AFFECTIVE
PSYCHOMOTOR
1
RADIO
GRAMOPHONE
TAPE RECORDER
AUDIO AIDS
2
LINE DRAWINGS
STILL PICTURES
OVERHEAD TRANSPARENCIES
PICTORIAL AIDS
3
MODELS
LARGE 3-DIMENSIONAL MODELS
MODELS
4
FILMS
TELEVISION
LOOP FILMS
FILMS
5
SIMULATION
AUDIO-VISUAL LABORATORIES
SIMULATION
6
FIELD TRIPS
PRACTICAL WORK
PRACTICAL WORK

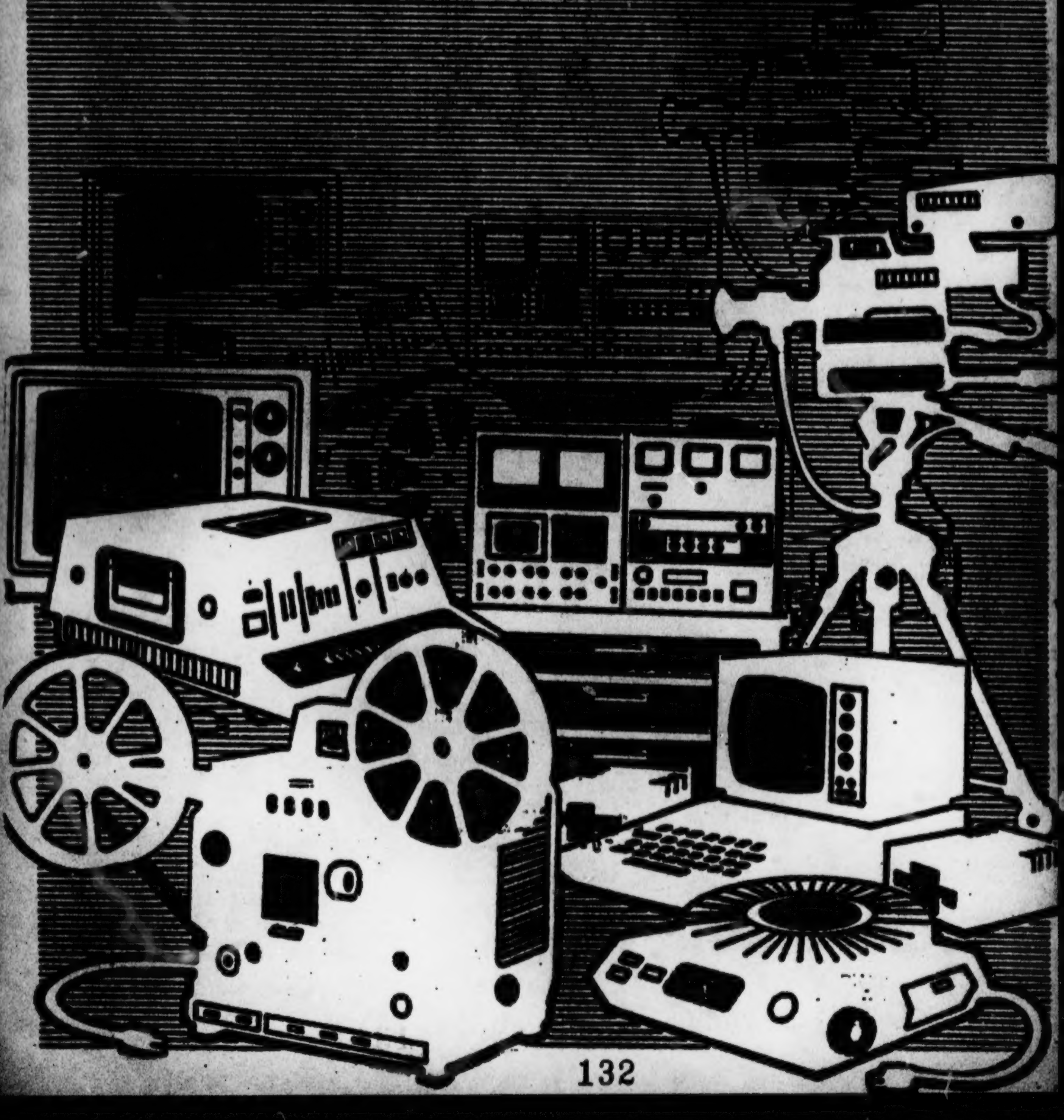
Diagram 2: (Connacher, 1982 : 26)

2.1.4 Evaluation

Educational media should be thoroughly evaluated regarding their suitability for specific needs. The following table of criteria covers almost the complete field for evaluation of audio-visual media.

MEDIA SELECTION

6



CRITERIA FOR SELECTION OF NONBOOK MATERIALS

POINTS OF QUALITY (Accept)	POINTS OF INFERIORITY (Reject)
LOOK FOR AUTHENTICITY	
Accurate facts	Innaccurate facts
Facts impartially presented	Facts distorted by bias
Up-to-date information	Fake revised version: date only changed, no up-dating of content
Other acceptable works of producer	Consistent rejection of other works of producer
APPROPRIATENESS	
Vocabulary at user's level	Vocabulary too easy or difficult
Concepts at user's level	Concepts too easy or difficult
Useful data	Extraneous data
Media-subject correlation (e.g., art prints to art, specimens to science)	Media does not add to subject concepts
Titles, captions, etc. related to subject	Titles, captions, etc. confuse subject concepts
Narration, dialogue, sound effects related to subject	Narration, dialogue, sound effects unrelated to subject
Individual and/or group use suitability	Limited individual and/or group use suitability
SCOPE	
Full coverage as indicated	Gaps in coverage
Superior concept development by this means	Better concept development by other means
Content to satisfy demands for current subjects	Irrelevance to current topics
INTEREST	
Relationship to user's experience	No relationship to user's cultural environment
Intellectual challenge	No intellectual challenge
Curiosity satisfaction	No satisfactory answers
Credibility	Implausibility
Imagination appeal	Prosaic presentation
Human appeal	Negative human values
Sensory appeal	No stimulation
ORGANIZATION	
Logical development	Confused development; excessive repetition
Pertinence of all sequences	Unrelated sequences
Balance in use of narration and dialogue; music and sound effects; background elements	Ineffective or overpowering use of the same elements

POINTS OF QUALITY (Accept)	POINTS OF INFERIORITY (Reject)
TECHNICAL ASPECTS	
Tone Fidelity	Tone distortion
Clarity	Extraneous sounds, visuals too detailed
Intelligibility	Difficulty in following image and/or sound
In-focus pictures	Fuzzy out-of-focus pictures
True size relationships	Unreal size relationships
Unified composition	Confused composition
Effective color use	Color is less effective than black and white
Complete synchronization	Uneven synchronization of sound and color
SPECIAL FEATURES	
Descriptive notes, teachers and/or users guide	Absence of useful notes, guides
Pertinent accompanying material	Unrelated materials packaged together
PHYSICAL CHARACTERISTICS	
Ease in handling, for user, for storage	Difficulty in handling
Minimum instruction for individual use	Special training requirements for use
Attractive packaging	Unattractive packaging
Durability	Flimsy construction
Ease of repair	Difficulty in repairing damage
LIBRARY POTENTIAL	
Relevancy that promotes communication	No furthering of communication
Flexibility for many effective uses	Features which limit use
SELECTION AIDS	
Recommendation in evaluation sources	Rejection in evaluation sources
COST	
Conformity in budget	Too costly for budget
No less expense for satisfactory substitutes	Satisfactory substitutes cheaper
Inexpensive or already purchased equipment	Expensive equipment needed
Economy if purchased	Greater expense to rent
Average supplemental costs for replacement, repair, physical processing, storage	Too expensive to replace, repair, process for use

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Diagram 3: Jonassen, 1982 : 377 - 379)

2.1.5 Workshop

Complete the following matrix to indicate to what degree a medium would be suitable for achieving the formulated learning objectives. Use the words Good, Ave, Weak.

RELATIVE CONTRIBUTION TO CERTAIN LEARNING OBJECTIVES

		OBJECTIVES					
TYPE MEDIUM	Factual information	Visual discrimination and identification	Principles and concepts	Procedures	Motor Skills	Attitudes and motivation	
Still image	Ave	Good	Ave	Ave	Weak	Weak	
Moving image	Ave	Good	Good	Good	Ave	Ave	
TV							
Tape recordings and records							
Demonstration							
Printed media							
Verbal presentation							
Image with sound							

Diagram 4: (Jonassen, 1982 : 375, as adapted).

Refer to Diagram 2 for value assessments of learning objectives.

2.2 Selection of visual media

2.2.1 Flow Chart for selection of visual media.

For a more objective approach to media selection, use a flow chart which traces the course of a specific medium by means of "yes" or "no" questions.

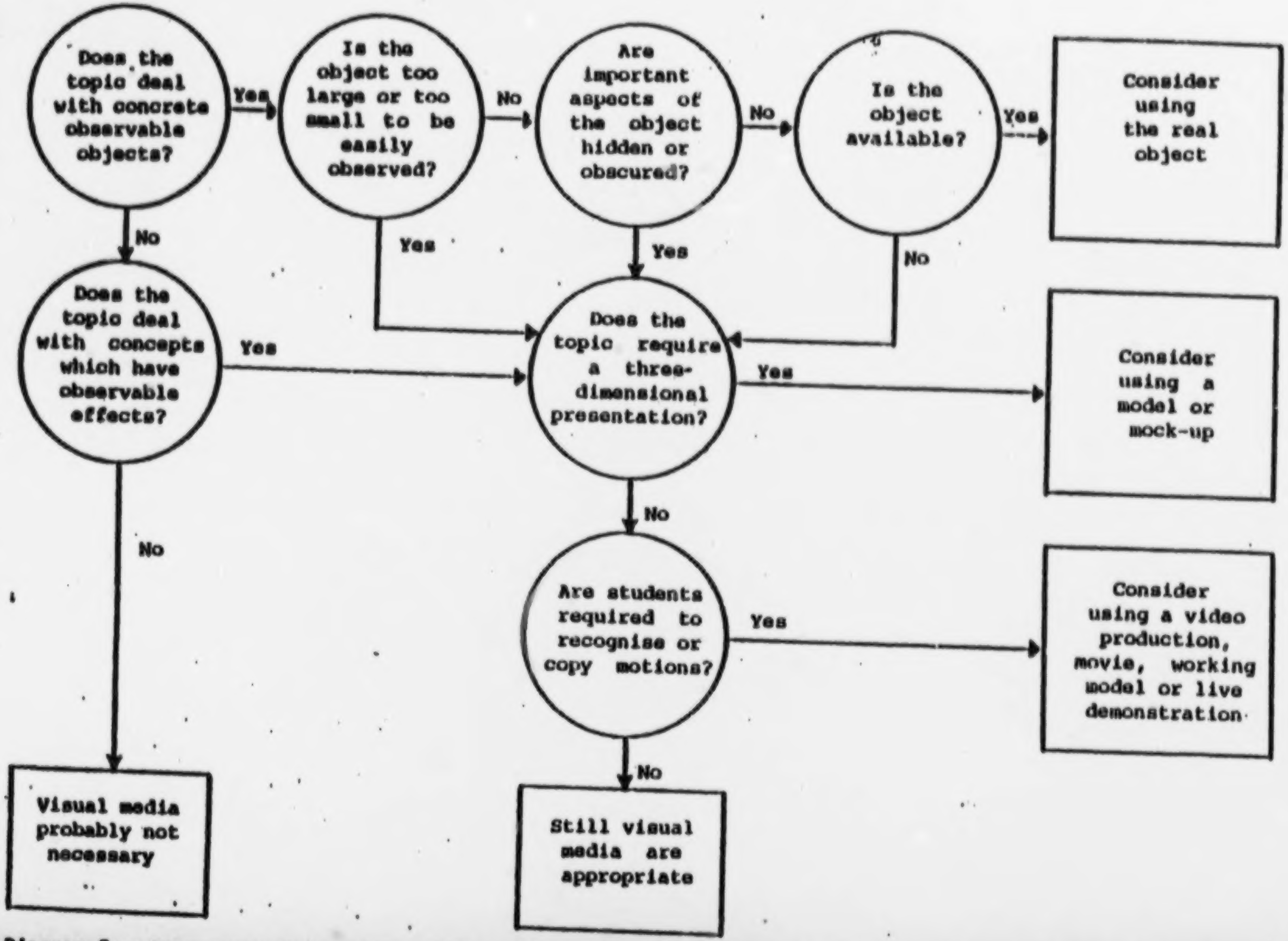
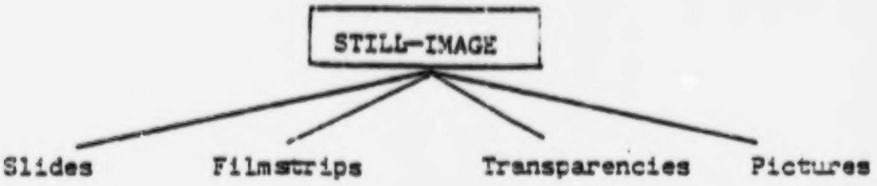

Does the topic deal with concrete observable objects?
Yes
Is the object too large or too small to be easily observed?
No
Are important aspects of the object hidden or obscured?
No
Is the object available?
Yes
Consider using the real object
No
Yes
Yes
No
Does the topic deal with concepts which have observable effects?
Yes
Does the topic require a three-dimensional presentation?
Yes
Consider using a model or mock-up
No
No
Are students required to recognise or copy motions?
Yes
Consider using a video production, movie, working model or live demonstration
No
Visual media probably not necessary
Still visual media are appropriate

Diagram 5: (Macquarie University, 1978 : M20) See also: Kemp, 1980 : 46 For examples of diagrams for media selection

2.2.2 The still-image.

The most well-known and common still-image media are slides, filmstrips, transparencies and pictures with the appropriate hardware with which to present them. Each of these media in turn possesses certain unique qualities which must be taken into account when selection is made in order to achieve the formulated objectives.



ASSIGNMENT: Qualities of the various still-image media are listed below. Consult it and decide which medium or media possess the specific quality.

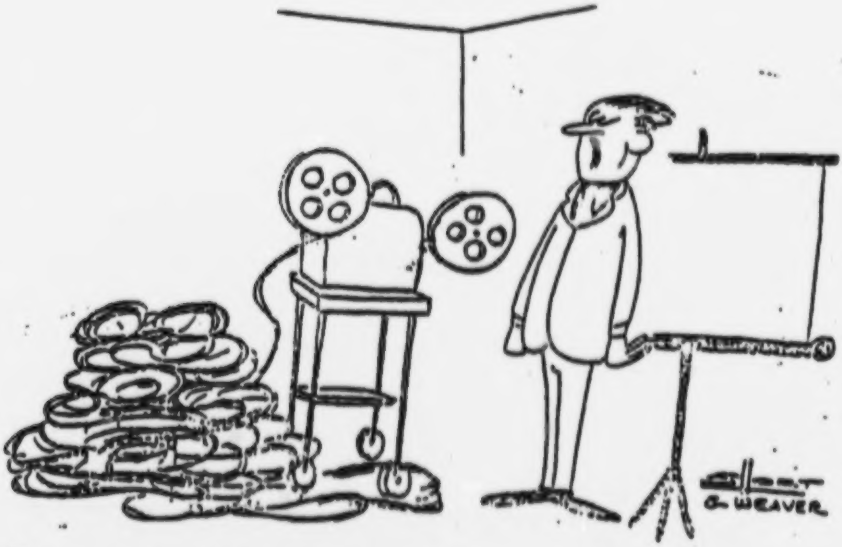
By considering the qualities below in conjunction with the target group, environment and availability, a responsible choice of the suitable medium or media can be made.

		Sl	Fs	Ohp	Pic			Sl	Fs	Ohp	Pic
1	Can give a true picture of reality					10	Can be adapted to substitute images in a sequence				
2	Eliminates the need for the real object					11	Can be used with a cassette recording				
3	Unsuitable for the depiction of movement					12	Provides a life size image				
4	Provides three-dimensional image					13	Can show relative size				
5	Provides an image which is two-dimensionally true to reality					14	Can be employed for individual use				
6	Provides an image in true-to-life colours					15	Can be used for large and small groups				
7	Can be altered					16	Possesses high resolution images				
8	Suitable for photographic depictions					17	Can be enlarged or reduced when projected				
9	Suitable for graphic depictions					18	Is dependent on hardware for its use				

2.2.3 The moving image : 16mm films

> *"The motion picture should be considered whenever motion is inherent in a subject or when you wish to show relationships of one idea to another, to build a continuity of thought, or to create a dramatic impact.*
>
> *Films need not be formal and lengthy productions. For some purposes a brief film shown completely in a few minutes is sufficient. It may treat a single concept, a problem situation, or a skill which is explained and applied. Such a film may be instructionally effective without elaborate titles or special motion-picture effects."*
> (Kemp, 1980 : 41-42)

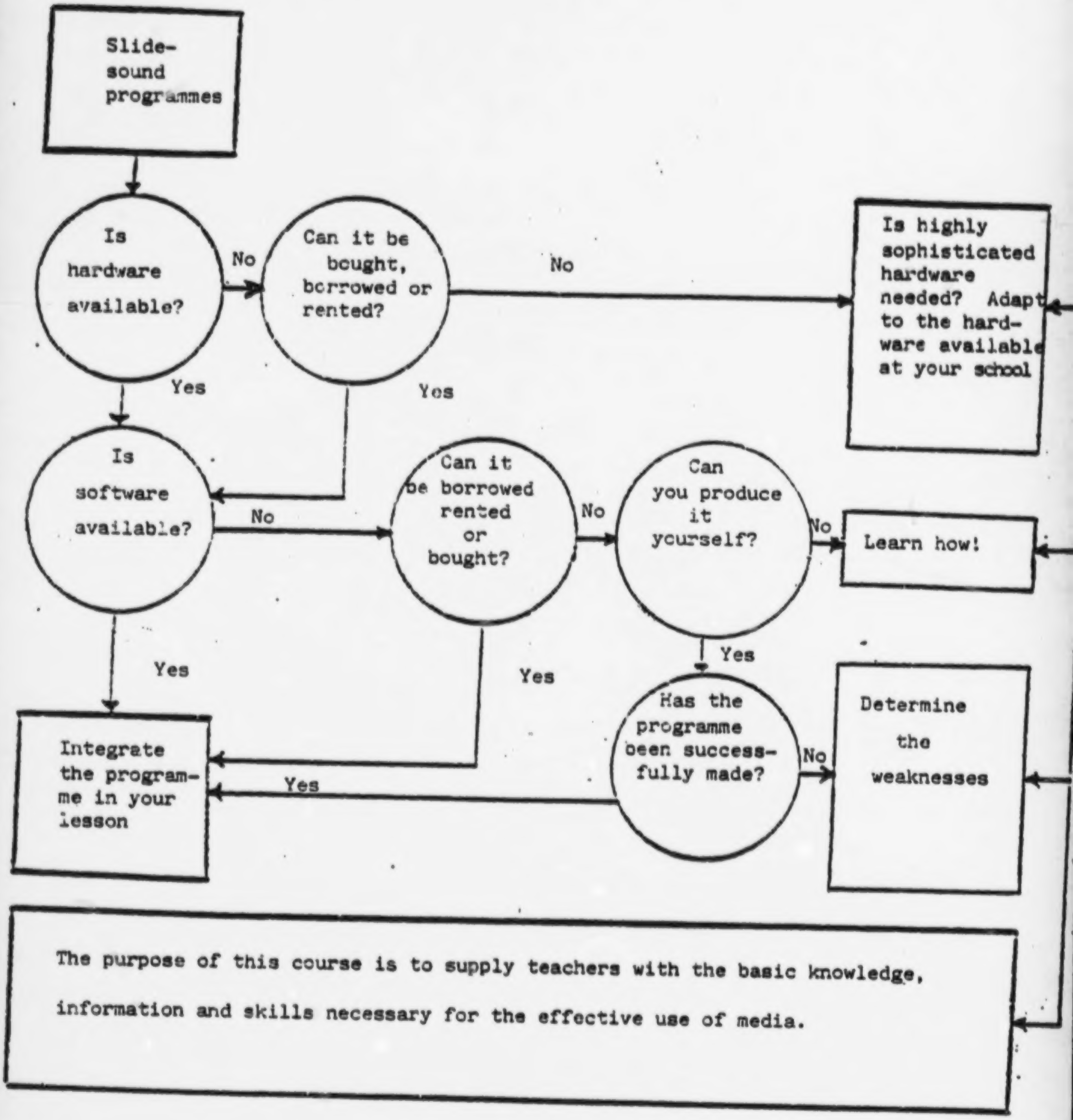
The 16mm film is a well known medium that is used quite frequently in education. Its effective use poses some practical problems as it requires darkening and that often results in the screening taking place in the school hall where the atmosphere is not conducive to educationally sound use of the medium. With thorough preparation and follow-up, effective use, however, is possible and the 16mm film fulfils an important role in education. Availability and facilities for use are additional factors which have to be taken into account in the selection of a film.



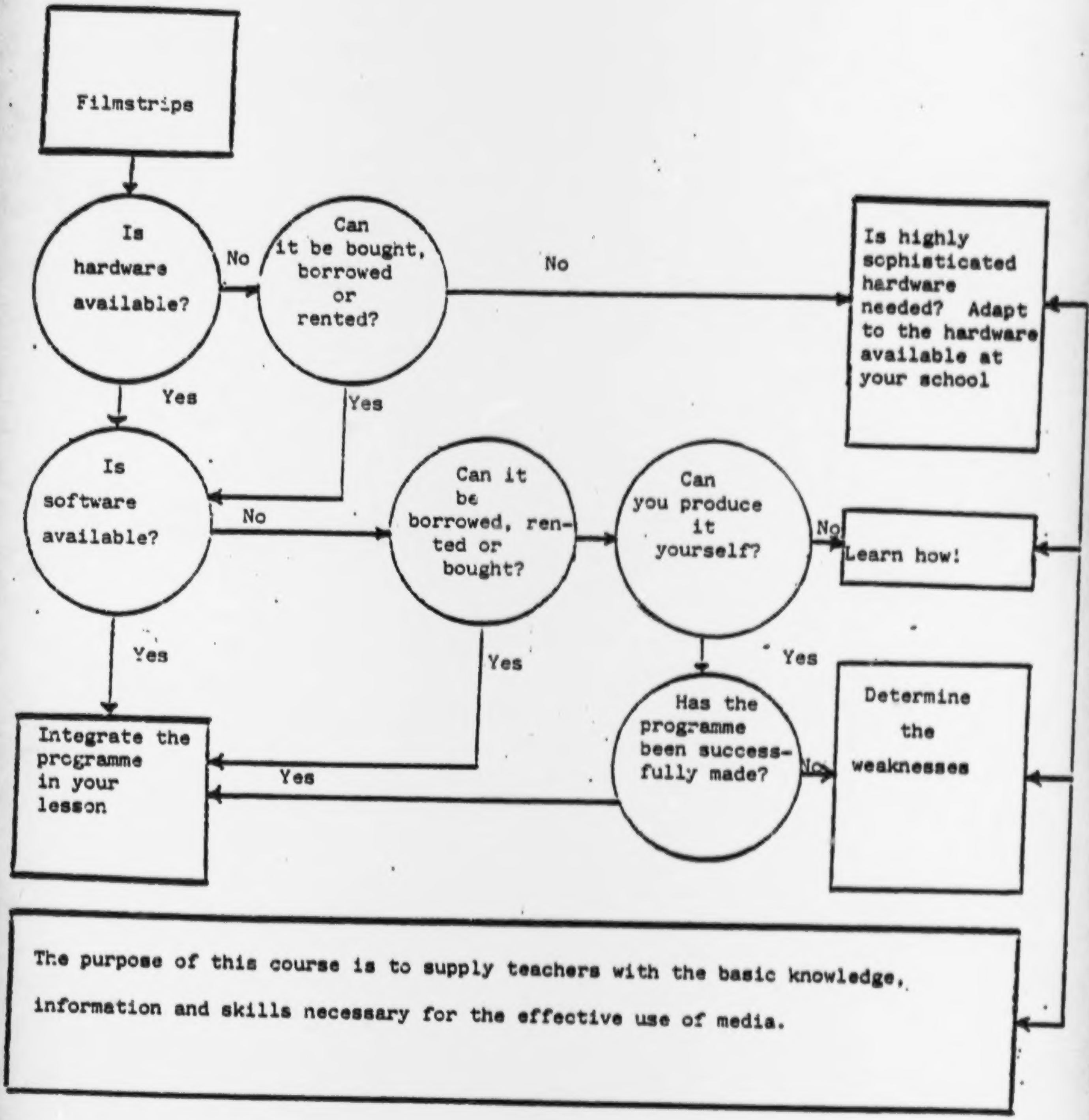
THE FILM YOU ARE WATCHING NOW IS ALL ABOUT.....

2.3 Practical considerations when selecting slide-sound programmes, filmstrips and films.

2.3.1 Slide-sound programmes.

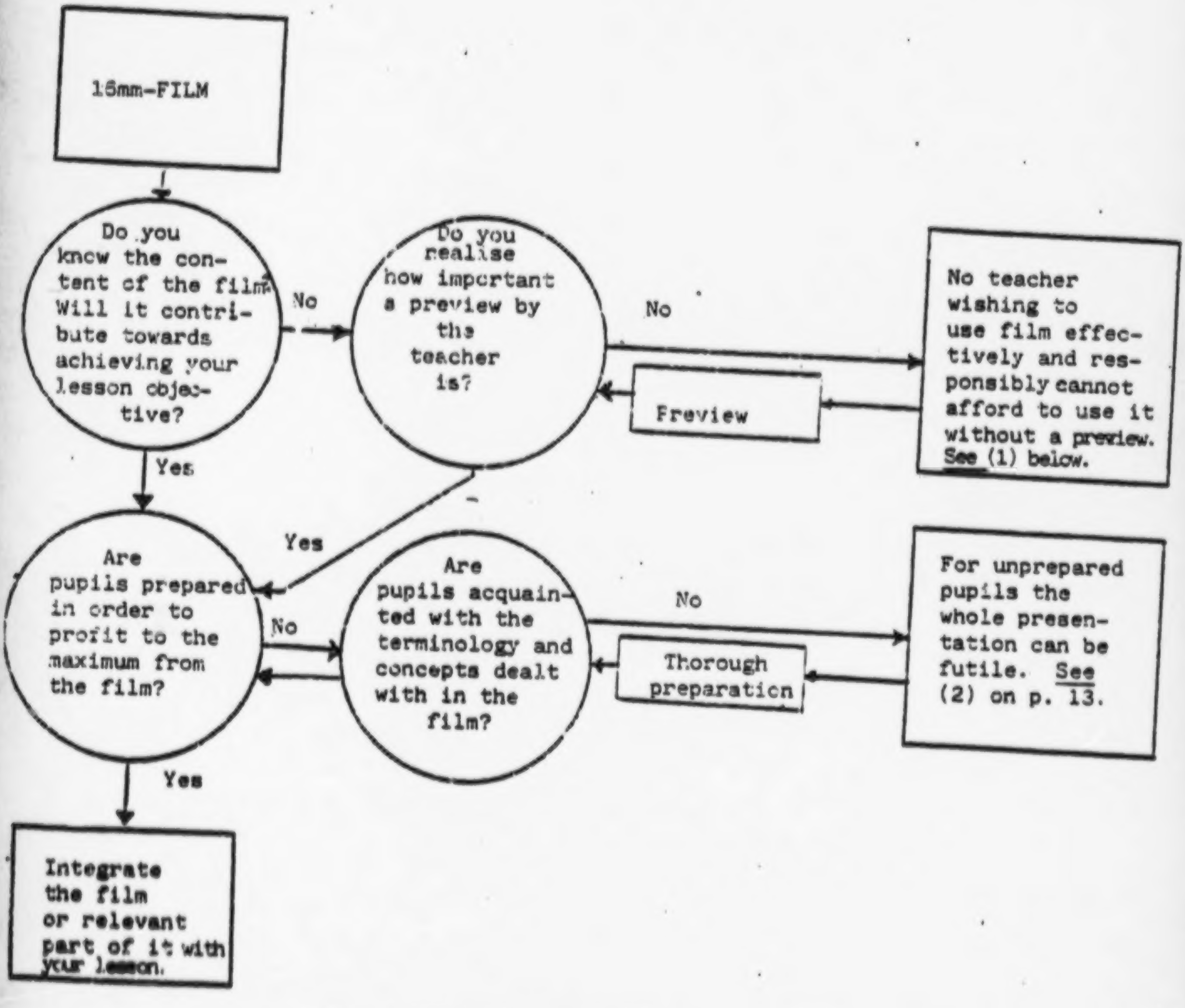

Slide-sound programmes
Is hardware available?
No
Can it be bought, borrowed or rented?
No
Is highly sophisticated hardware needed? Adapt to the hardware available at your school
Yes
Yes
Is software available?
No
Can it be borrowed rented or bought?
No
Can you produce it yourself?
No
Learn how!
Yes
Yes
Yes
Has the programme been successfully made?
No
Determine the weaknesses
Integrate the programme in your lesson
Yes
The purpose of this course is to supply teachers with the basic knowledge, information and skills necessary for the effective use of media.

2.2.3 Filmstrips


Filmstrips
Is hardware available?
No
Can it be bought, borrowed or rented?
No
Is highly sophisticated hardware needed? Adapt to the hardware available at your school
Yes
Yes
Is software available?
No
Can it be borrowed, rented or bought?
Can you produce it yourself?
No
Learn how!
Yes
Yes
Yes
Has the programme been successfully made?
No
Determine the weaknesses
Integrate the programme in your lesson
Yes

The purpose of this course is to supply teachers with the basic knowledge, information and skills necessary for the effective use of media.

2.3.3 Films


16mm-FILM
Do you know the content of the film? Will it contribute towards achieving your lesson objective?
No
Do you realise how important a preview by the teacher is?
No
No teacher wishing to use film effectively and responsibly cannot afford to use it without a preview. See (1) below.
Preview
Yes
Yes
Are pupils prepared in order to profit to the maximum from the film?
No
Are pupils acquainted with the terminology and concepts dealt with in the film?
No
For unprepared pupils the whole presentation can be futile. See (2) on p. 13.
Thorough preparation
Yes
Integrate the film or relevant part of it with your lesson.

(1) PREVIEW is essential

The teacher who has chosen film as a medium must, keeping the lesson objective in mind, note the following points during the preview.

- Does the film help towards achieving your objective?

- Is the entire film useful?
- Should only part of the film be shown?
- Which words or subject terminology will have to be clarified beforehand?
- How will the pupils' interest be stimulated beforehand and what feedback is required?
- What other media will have to be used in addition?
- Which specific aspects require clarification beforehand?

(2) PREPARATION of pupils

- Improve learning by giving prior guidance, e.g. by putting specific questions or supplying a framework for feedback.
- Motivate pupils and stimulate interest so that they will know why it is important to see the film.
- Make pupils aware of the salient points so that they can look for them.
- Guide pupils to follow the sequence of events in the film.
- Explain those words and concepts occurring in the film but which are not explained in it.

"How's your sense of humor?"

3. KNOW THE ABC OF THE SLIDE-FILMSTRIP, SLIDE-SOUND AND 16mm PROJECTOR.

3.1 Potential uses of slide-filmstrip, slide-sound and 16mm films

3.2 The slide-filmstrip projector.

3.3 The slide-sound projector.

3.4 16mm Film projector.

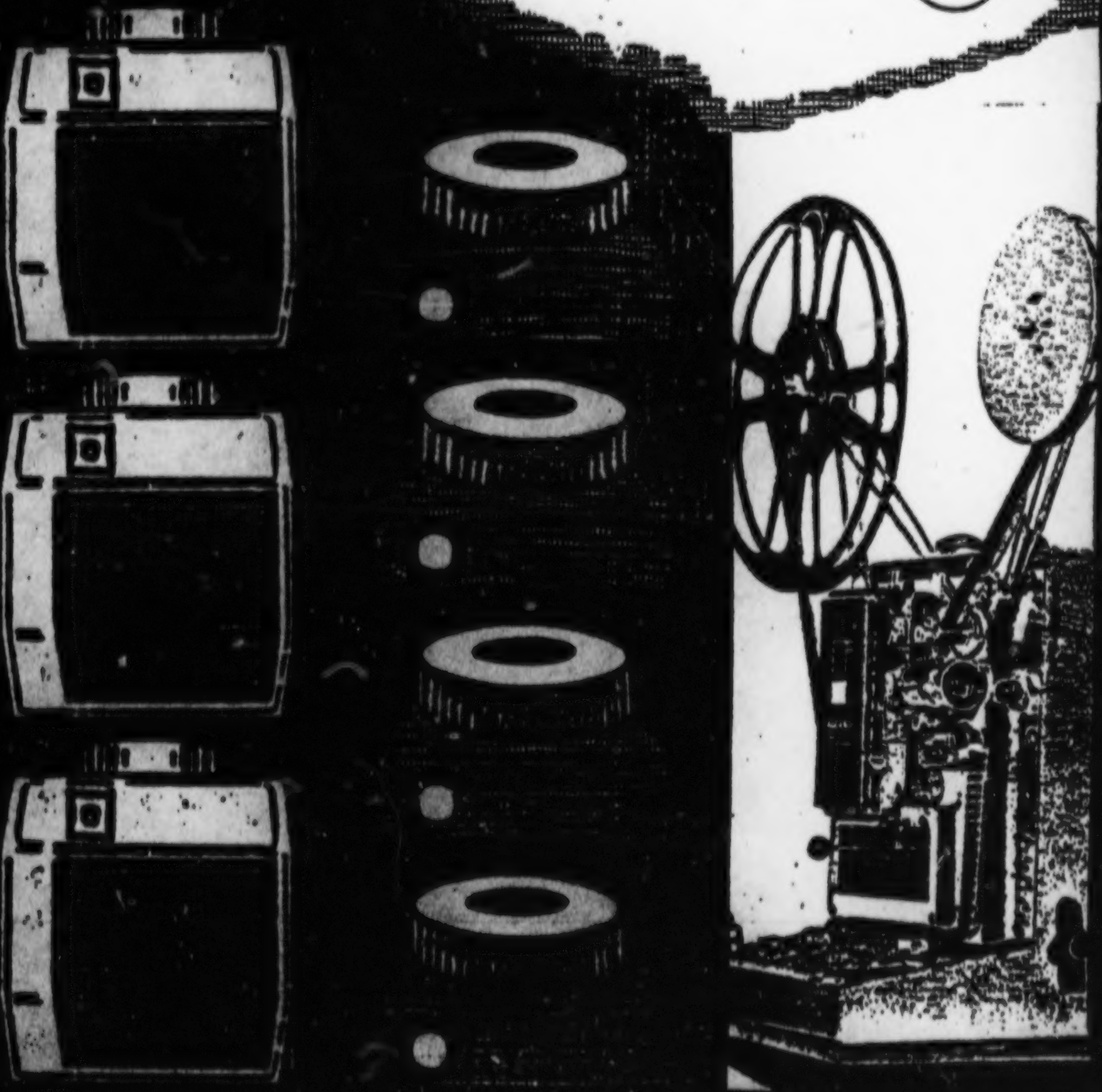
3.1 Potential uses of slides, slide-sound programmes, filmstrips and 16mm films.

3.1.1 Slides

Advantages	Possible limitations
(1) True-to-life images and colour can be depicted	(1) Like other projected images a slide is only a two-dimensional medium
(2) It is relatively inexpensive	(2) A few days' delay for slide development
(3) Can easily be made by the teacher	(3) Motor skills cannot easily be taught through still images
(4) The necessary hardware is available at all schools	
(5) Can be planned and designed for any target group	
(6) Can easily be altered by changing the order of slides or by replacing them	
(7) The tempo of presentation can be determined by the teacher	
(8) Teacher provides own commentary	
(9) It can easily be repeated for revision purposes	
(10) A variety of techniques for photography and graphics can be used	
(11) Slide series can be used for any size audience	
(12) Slides have good image quality with high definition	

KNOW THE ABC OF SLIDE-FILMSTRIP PROJECTORS, SLIDE-SOUND- AND 16mm PROJECTORS

⑥



3.1.2 Sound-slide programme

Advantages	Possible limitations
(1) True-to-life images and colour can be depicted	(1) Require more sophisticated hardware
(2) It is relatively inexpensive	(2) Planning of programme is much more involved than slide series
(3) Can easily be made by the teacher	(3) Tempo of presentation cannot be altered
(4) The necessary hardware is available at all schools	(4) Programme content is less adaptable than in a slide series
(5) Can be planned and designed for any target group	(5) The order of slides is easily disturbed
(6) Outdated slides can be replaced	
(7) The programme can be interrupted for discussion.	
(8) Can easily be repeated for revision	
(9) A variety of techniques for photography and graphics can be employed	
(10) Is suitable for any size audience	
(11) Good, high definition image quality	
(12) Active pupil involvement is possible eg. assignments to develop looking and listening skills, completion of work charts, research and production of programmes	
(13) Differentiation within the group is made possible by using earphones	
(14) Is especially suitable for self-study by pupils	

3.1.3 Filmstrips

Advantages	Possible limitations
(1) True-to-life images and colour can convey a faithful rendering of reality to pupils	(1) Self-manufacture is more difficult than with slide series
(2) Is somewhat less expensive than slide series	(2) Sequence cannot be altered
(3) Hardware available at all schools	(3) Easily damaged
(4) Commentary can be presented by teacher	(4) Any alteration would necessitate a new filmstrip
(5) Can be employed for any size audience	
(6) Good high definition images	

3.1.4 16mm Films

Advantages	Possible limitations
(1) Image and sound are presented in simultaneous, synchronised form	(1) Production costs and even rental costs are relatively high
(2) Moving image is a unique quality of this medium	(2) Films are prone to damage
(3) Different visual techniques can achieve special effects	(3) Proper darkening is required
(4) Aspects outside the child's field of experience are visually presented	(4) Must usually be ordered long in advance
(5) Image and sound of high quality are possible	(5) The sequence of content in a film cannot be manipulated by teacher
(6) Films are suitable for large or small audiences	(6) Are often regarded as merely an entertainment medium
(7) Short films can be effectively integrated with lessons	(7) Films often contain too much information for pupils to absorb

3.2 The slide-sound projector

3.2.1 Introduction

This multi-purpose projector is suitable for the projection of single slides, slide series without sound, as well as filmstrips. For the projection of filmstrips a special filmstrip attachment must be used. Because this projector projects a relatively powerful light beam it is effective for projection over longer distances, eg. in school halls.

3.2.2 Practical hints for successful application

(1) It is important that slides are correctly arranged in the tray beforehand.

(2) The locking ring that prevents the slides from falling out of the trays should always be in place.

(3) The slide tray should be properly fitted into position to ensure that slide changes occur.

(4) Make sure that the projector is properly focused.

(5) Adjust the lens for maximum feasible image size.

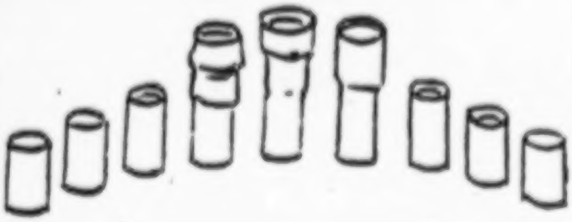
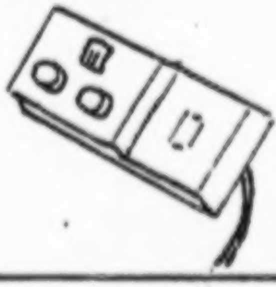
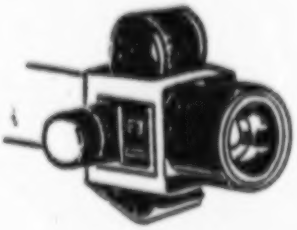
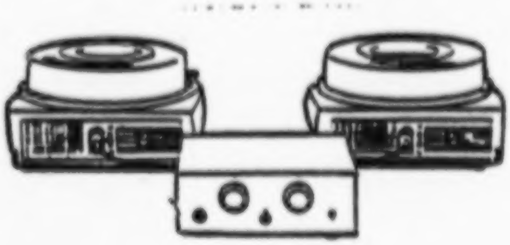
(6) If darkening is insufficient, switch lamp to maximum brightness.

(7) Use the remote control facility to avoid knocking the projector out of position.

(8) Because the filmstrip attachment can be angled it is possible to ensure right angles projection.

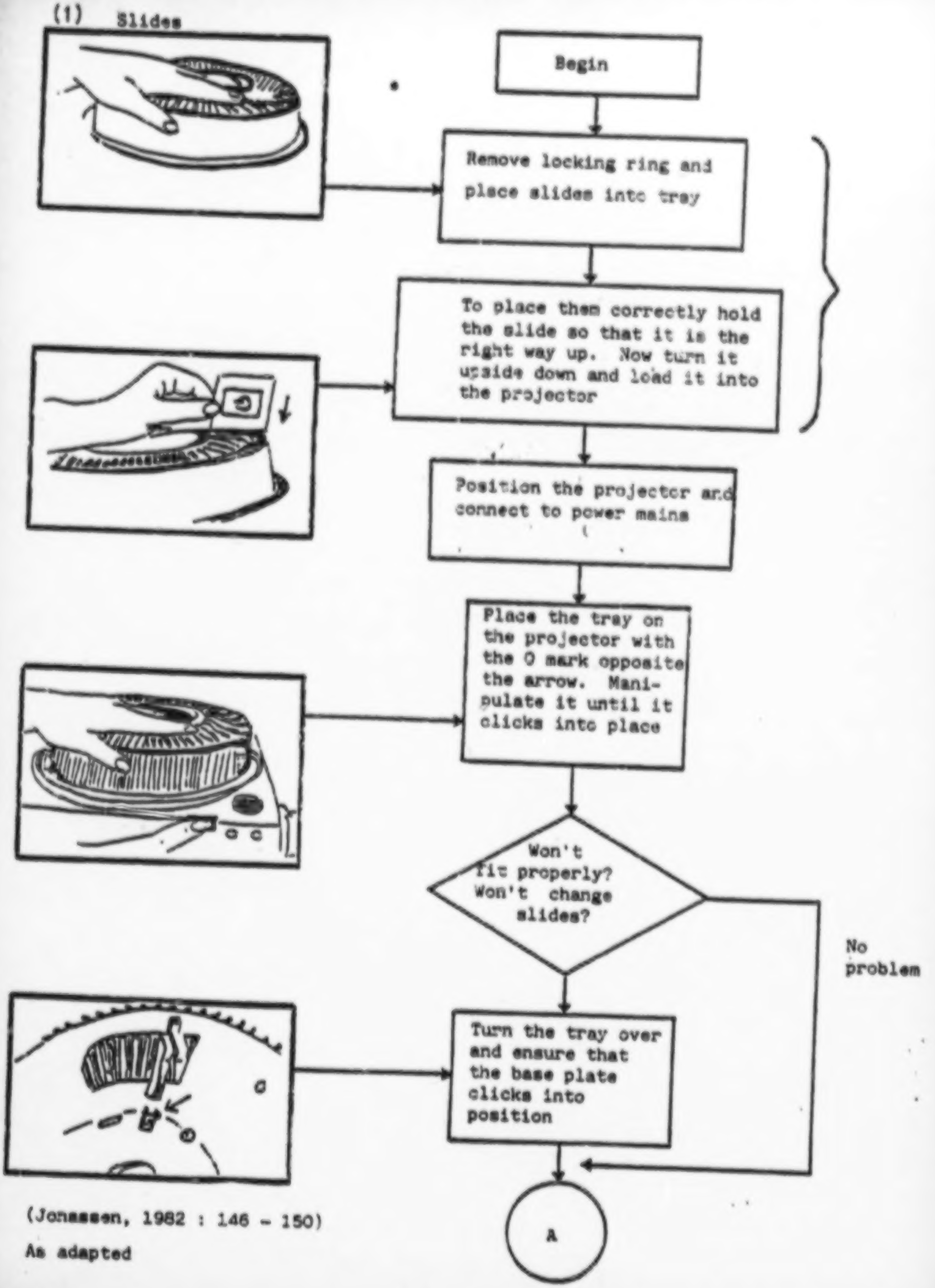
(9) Avoid keystone shaped images.

WORKSHOP: Write down the features of each component

(1) Lenses 	
(2) Remote control 	
(3) Filmstrip attachment 	
(4) Automatic control and dissolve 	

3.2.4 Use of the slide-sound projector

(1) Slides



Begin

Remove locking ring and place slides into tray

To place them correctly hold the slide so that it is the right way up. Now turn it upside down and load it into the projector

Position the projector and connect to power mains

Place the tray on the projector with the O mark opposite the arrow. Manipulate it until it clicks into place

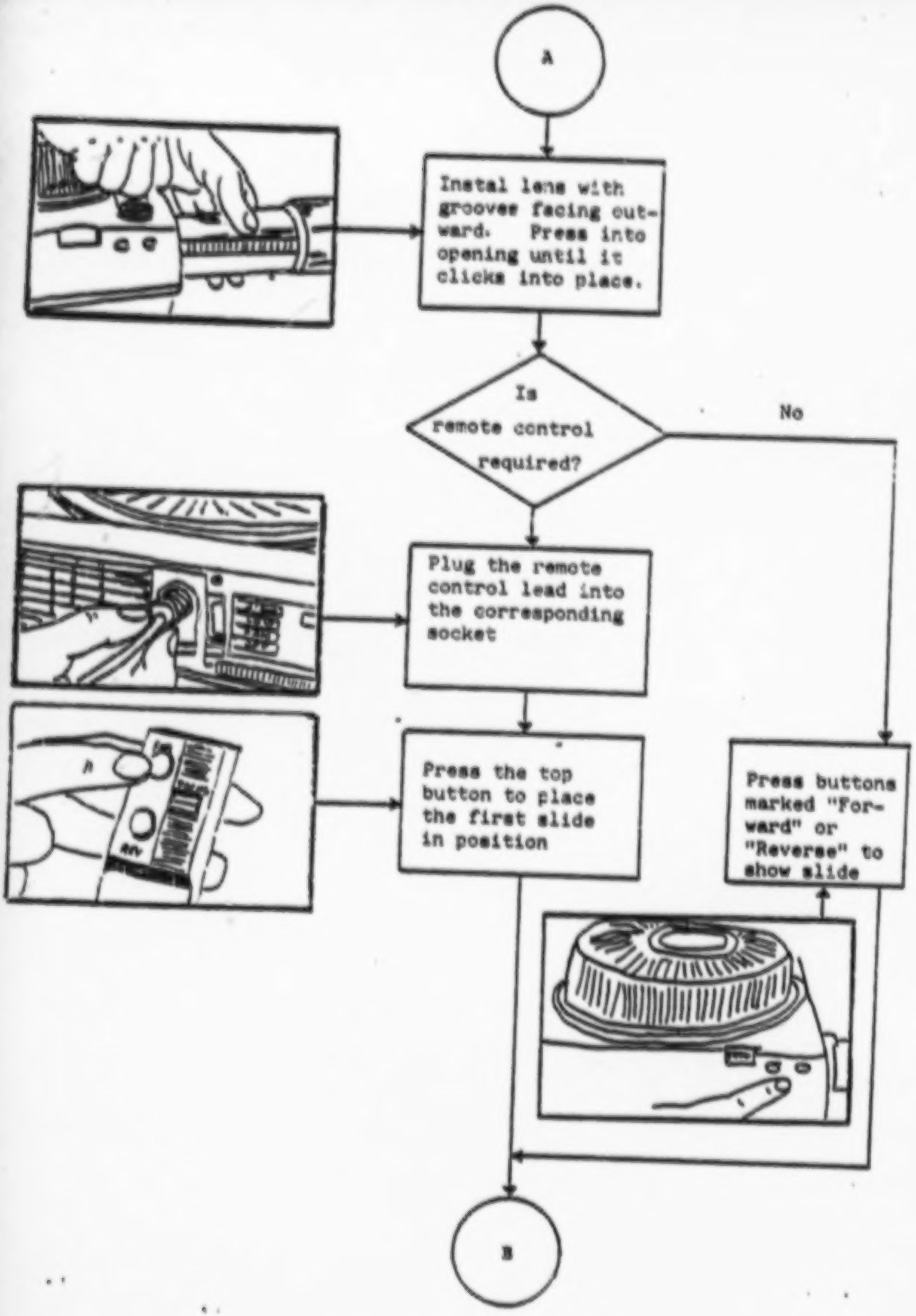
Won't fit properly? Won't change slides?

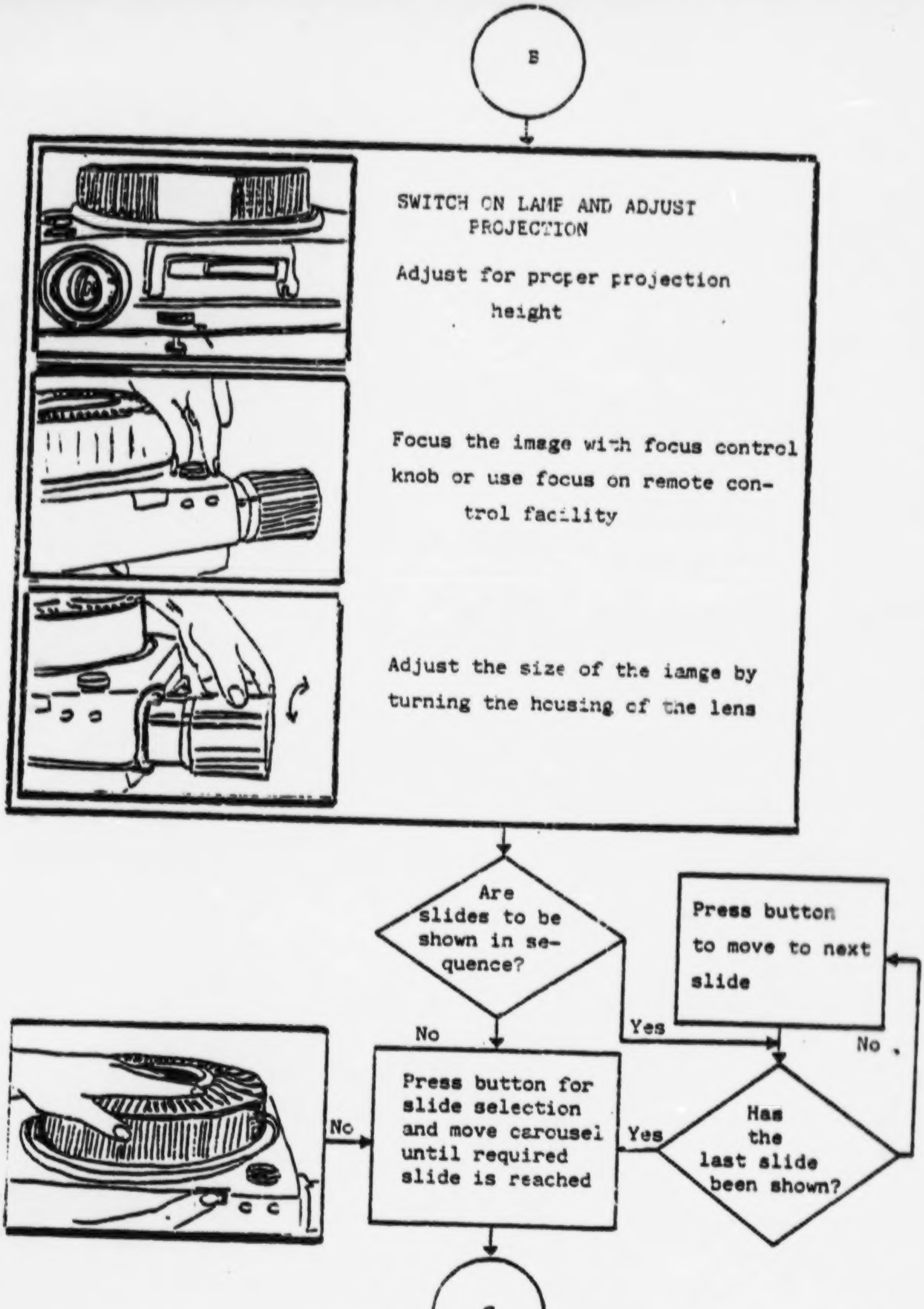
No problem

Turn the tray over and ensure that the base plate clicks into position

(Jonassen, 1982 : 146 - 150)

As adapted


A
Instal lens with grooves facing outward. Press into opening until it clicks into place.
Is remote control required?
No
Plug the remote control lead into the corresponding socket
Press the top button to place the first slide in position
Press buttons marked "Forward" or "Reverse" to show slide
B



SWITCH ON LAMP AND ADJUST PROJECTION

Adjust for proper projection height

Focus the image with focus control knob or use focus on remote control facility

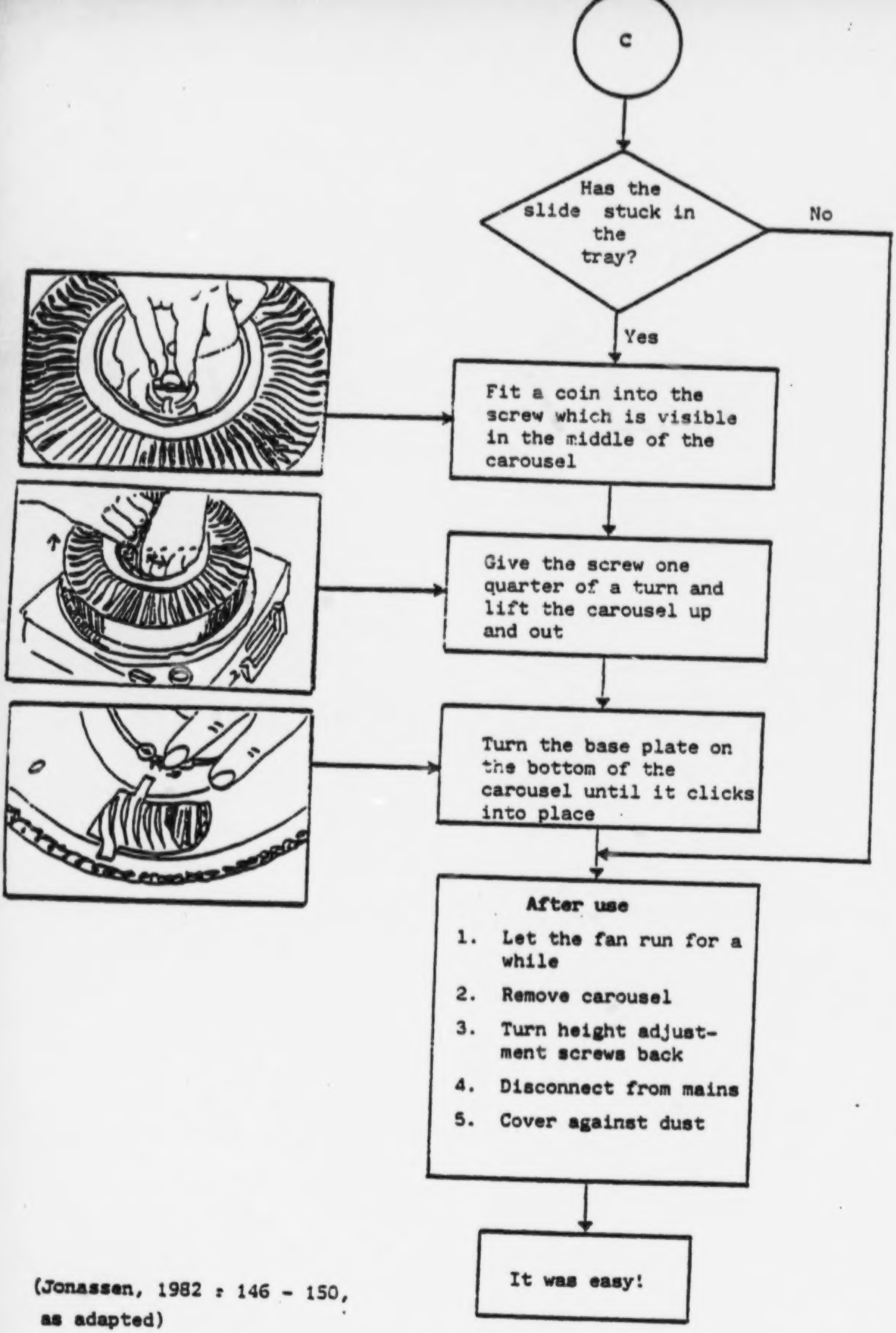
Adjust the size of the iamge by turning the housing of the lens

Are slides to be shown in sequence?

Press button to move to next slide

Press button for slide selection and move carousel until required slide is reached

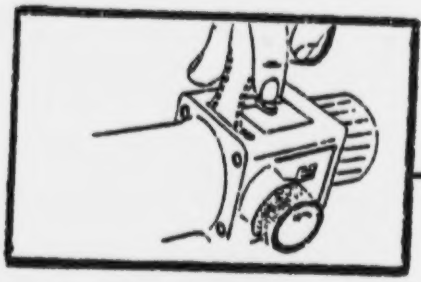
Has the last slide been shown?


C
Has the slide stuck in the tray?
No
Yes
Fit a coin into the screw which is visible in the middle of the carousel
Give the screw one quarter of a turn and lift the carousel up and out
Turn the base plate on the bottom of the carousel until it clicks into place
After use
1. Let the fan run for a while
2. Remove carousel
3. Turn height adjustment screws back
4. Disconnect from mains
5. Cover against dust
It was easy!

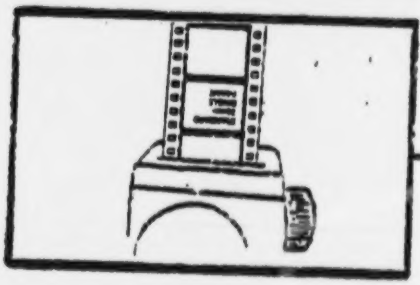
(Jonassen, 1982 : 146 - 150, as adapted)

(2) Filmstrips

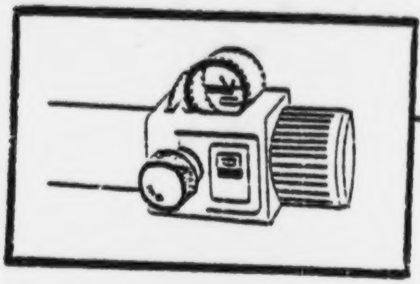
Begin



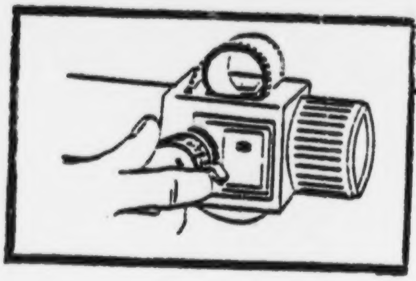
Place the front lead of the filmstrip into the filmstrip adaptor



The images must enter the slit upside down, as slides do



Hook the curled up part of the filmstrip on to the adaptor



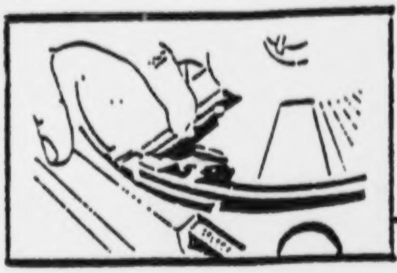
Feed the filmstrip by turning the knob on the adaptor

Position projector and connect to power mains

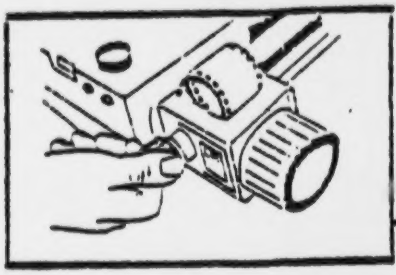
A

A

Fit the filmstrip adaptor to the projector

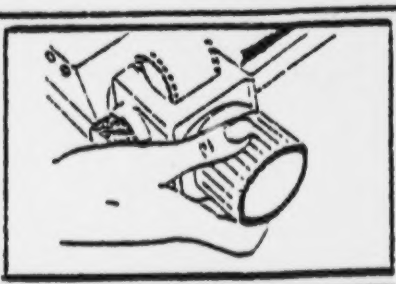


Switch on the lamp and open the shutter in the slide gate

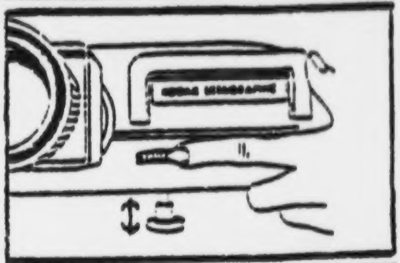


Feed the film with the rotating knob until the first image appears

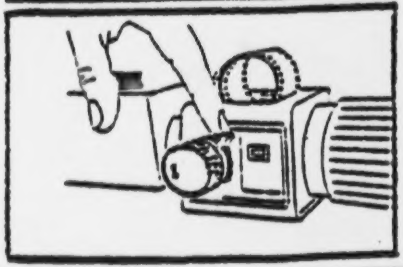
DO THE REQUIRED ADJUSTMENTS TO PROJECTION



Focus the image by slipping the lens in or out



Adjust for correct height

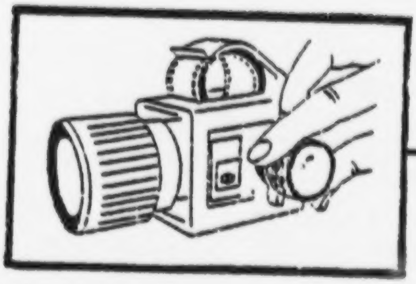


Adjust framing so that the frames fit the projection area

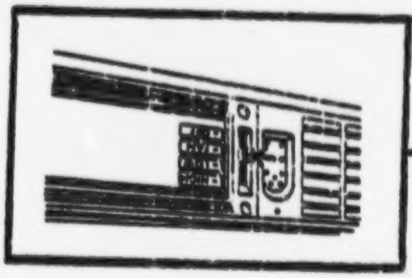
B

B

Successive images are obtained by turning the control knob one click at a time



After the last image the lamp is switched off but the fan must be left on to cool the projector



Remove the filmstrip adaptor and continue winding until the filmstrip has been removed

After use

1. Turn height adjustment screws back
2. Disconnect from power mains
3. Cover against dust

That was also easy!

3.2.5 Test yourself

Every teacher should be able to:

(1) Fit the lens

(2) Load slides into the slide tray

(3) Switch on power and lamp

(4) Connect and use remote control

(5) Focus the image

(6) Enlarge or reduce projection

(7) Change slides one by one, with and without remote control

(8) Change slides out of sequence

(9) Adjust vertical projection angle

(10) Remove slide tray when stuck

(11) Remove lens and slide tray

(12) Load filmstrip

(13) Fit filmstrip adaptor on projector

(14) Feed filmstrip

(15) Adjust framing of image

(16) Focus filmstrip

(17) Remove filmstrip

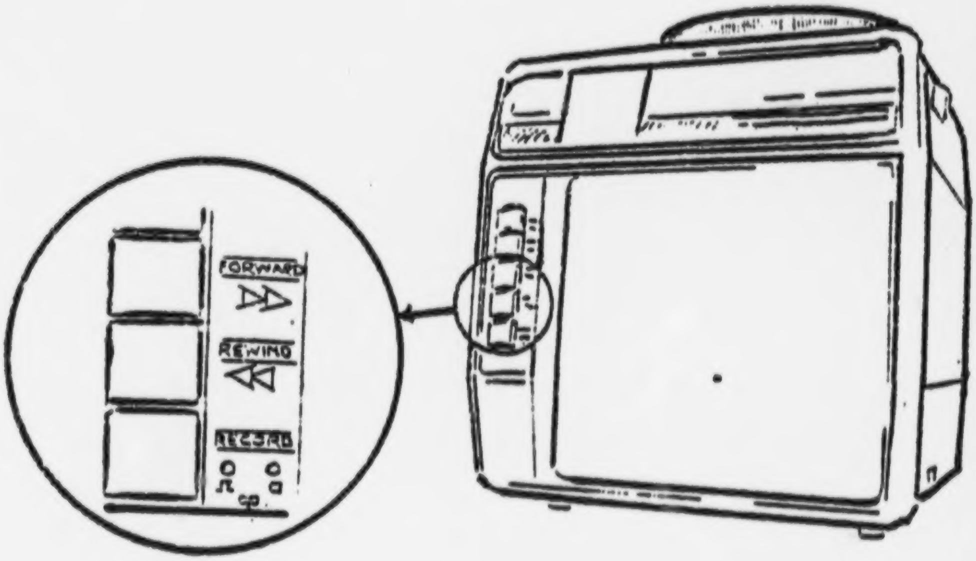
3.3 The slide sound projector

3.3.1 Introduction

(1) Slide-sound projectors are available in playback or record-playback units, depending on whether they are capable of recording sound and synchronising pulses or not.

(2) The playback unit is only capable of synchronised playback of existing programmes. The record-playback unit is essential for the manufacture of programmes, as it records both sound and pulses for synchronisation. The unit can also play back existing programmes.

(3) The record-playback unit can easily be recognised, as the lowest button indicates the recording function.



(4) The slide-sound projector consists mainly of a slide projector which can project on to an outside screen or on to a built-in rear projection screen. The mechanism and operation of this projector is relatively simple.

3.3.2 Practical hints for successful application

(1) It is important that slides are correctly loaded beforehand.

(2) The locking ring, which prevents slides from falling out of the tray, must be used.

(3) Fit the slide tray into position properly otherwise slide changes will not occur.

(4) Ensure that the projector is properly focused.

(5) Place the projector at such a height that the image is clearly visible to everyone.

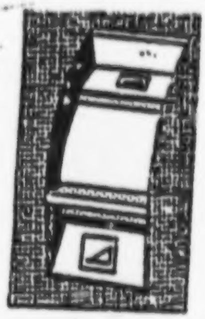
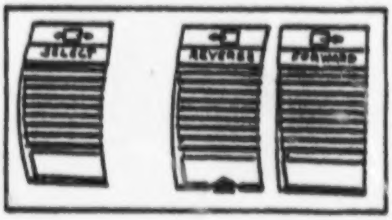
(6) Do not expect a large audience to see the image on the small built-in screen. In such circumstances project on to a large screen.

(7) For individual use, earphones can be connected.

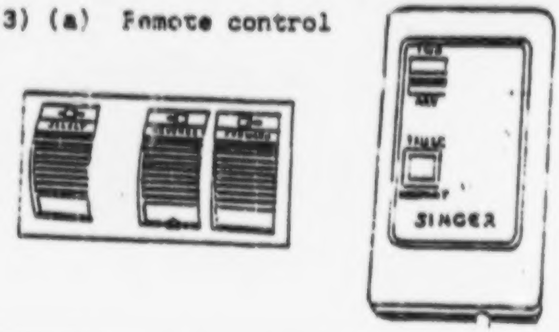
(8) For small groups, a junction box with earphones can be used.

3.3.3 Features

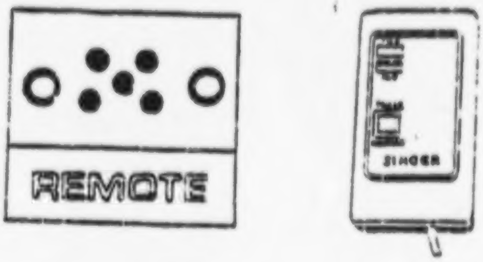
WORKSHOP: Write down the characteristics of each aspect

(1) Projection size 	
(2) Remote slide control 	

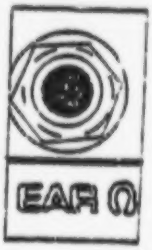
(3) (a) Remote control



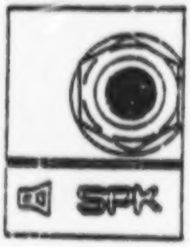
(3) (b)

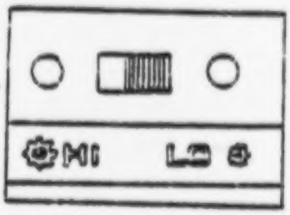
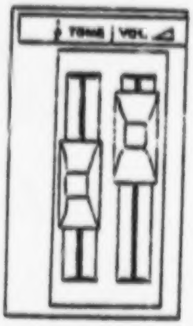
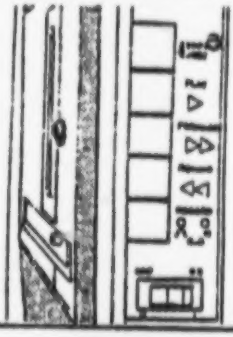

REMOTE
SINGER

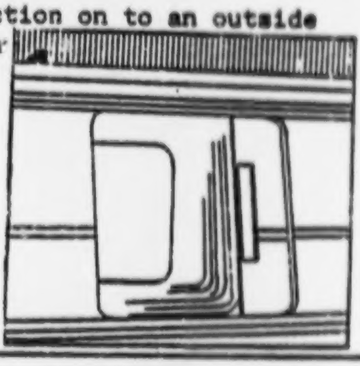
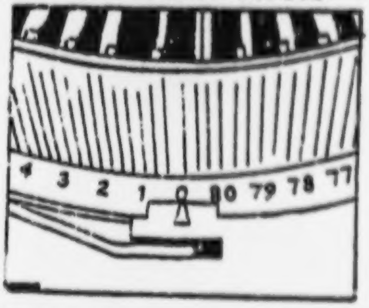
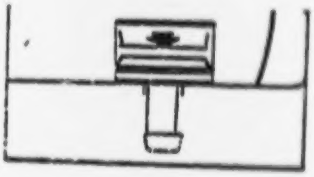
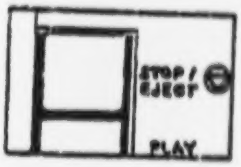
(4) Earphones



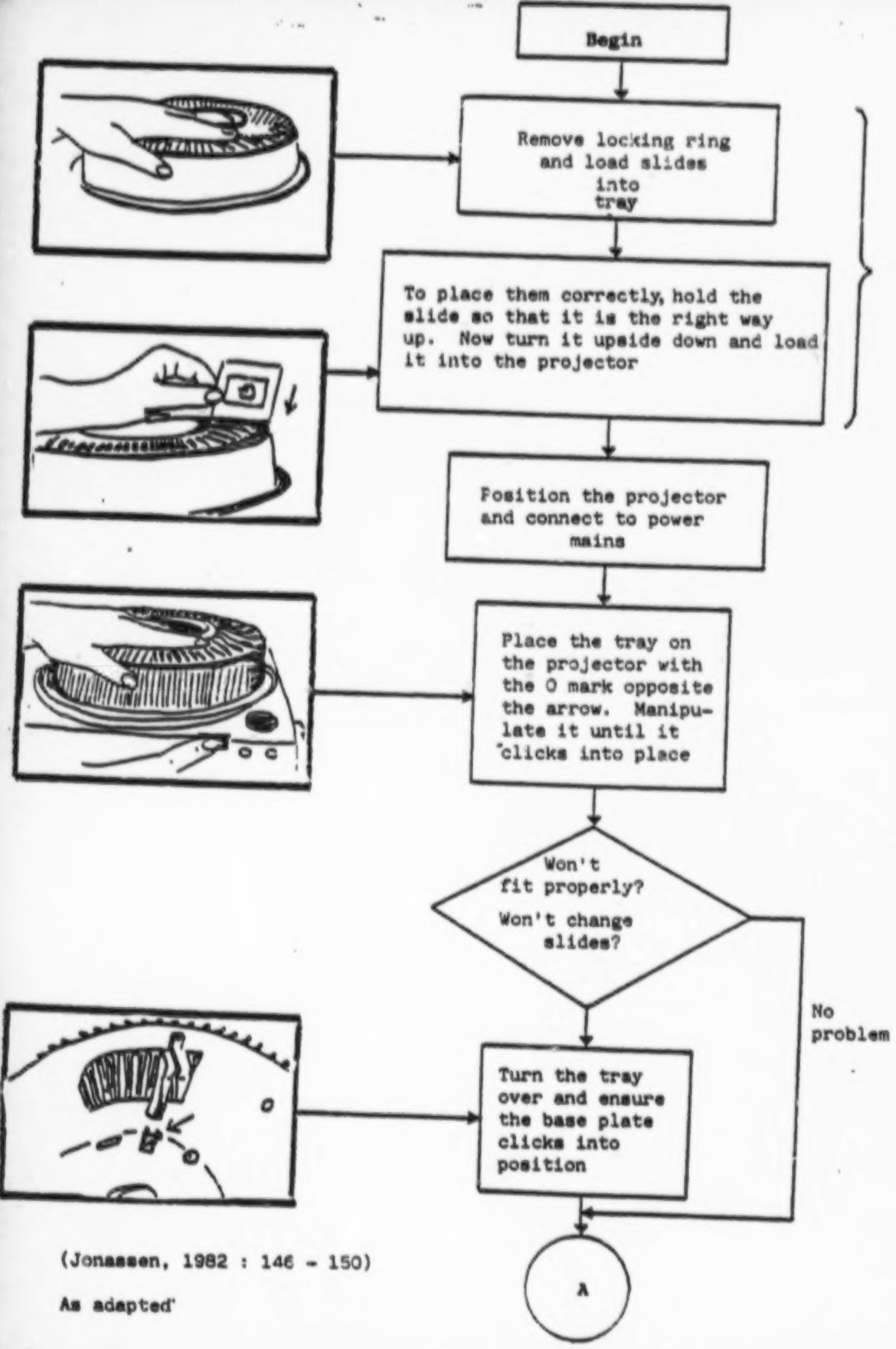
(5) External loudspeaker



(6) Definition of projected image 	
(7) Sound controls 	
(8) Controls for cassette function 	
(9) Cassette tapes 	

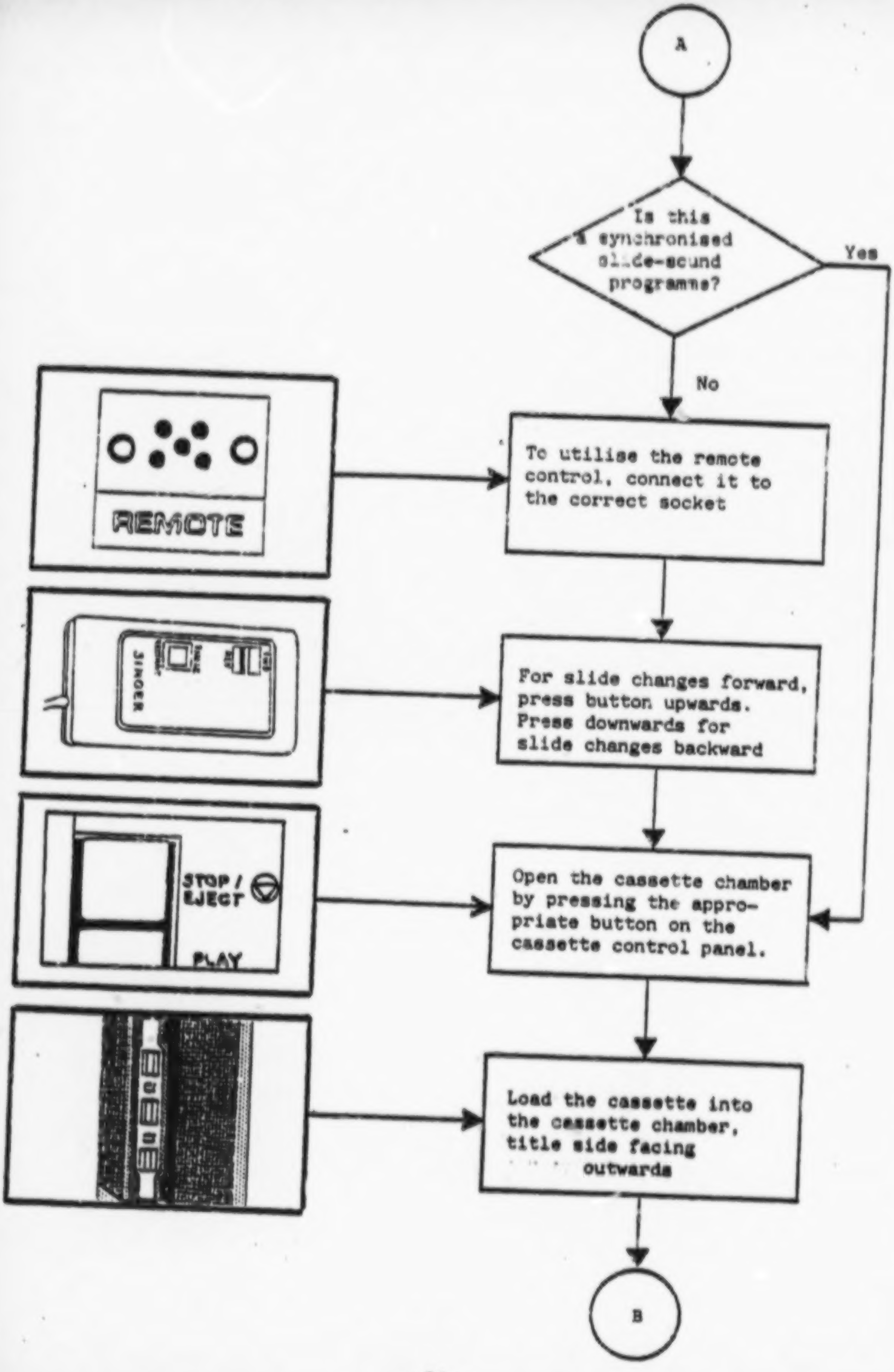
(10) Projection on to an outside screen 	
(11) Slides in a numbered series  4 3 2 1 0 80 79 78 77	
(12) Height adjustment 	
(13) Interruption of a programme  STOP/ EJECT PLAY	

3.3.4 Use of the slide sound projector


Begin
Remove locking ring and load slides into tray
To place them correctly, hold the slide so that it is the right way up. Now turn it upside down and load it into the projector
Position the projector and connect to power mains
Place the tray on the projector with the O mark opposite the arrow. Manipulate it until it clicks into place
Won't fit properly?
Won't change slides?
No problem
Turn the tray over and ensure the base plate clicks into position
A

(Jonassen, 1982 : 146 - 150)

As adapted



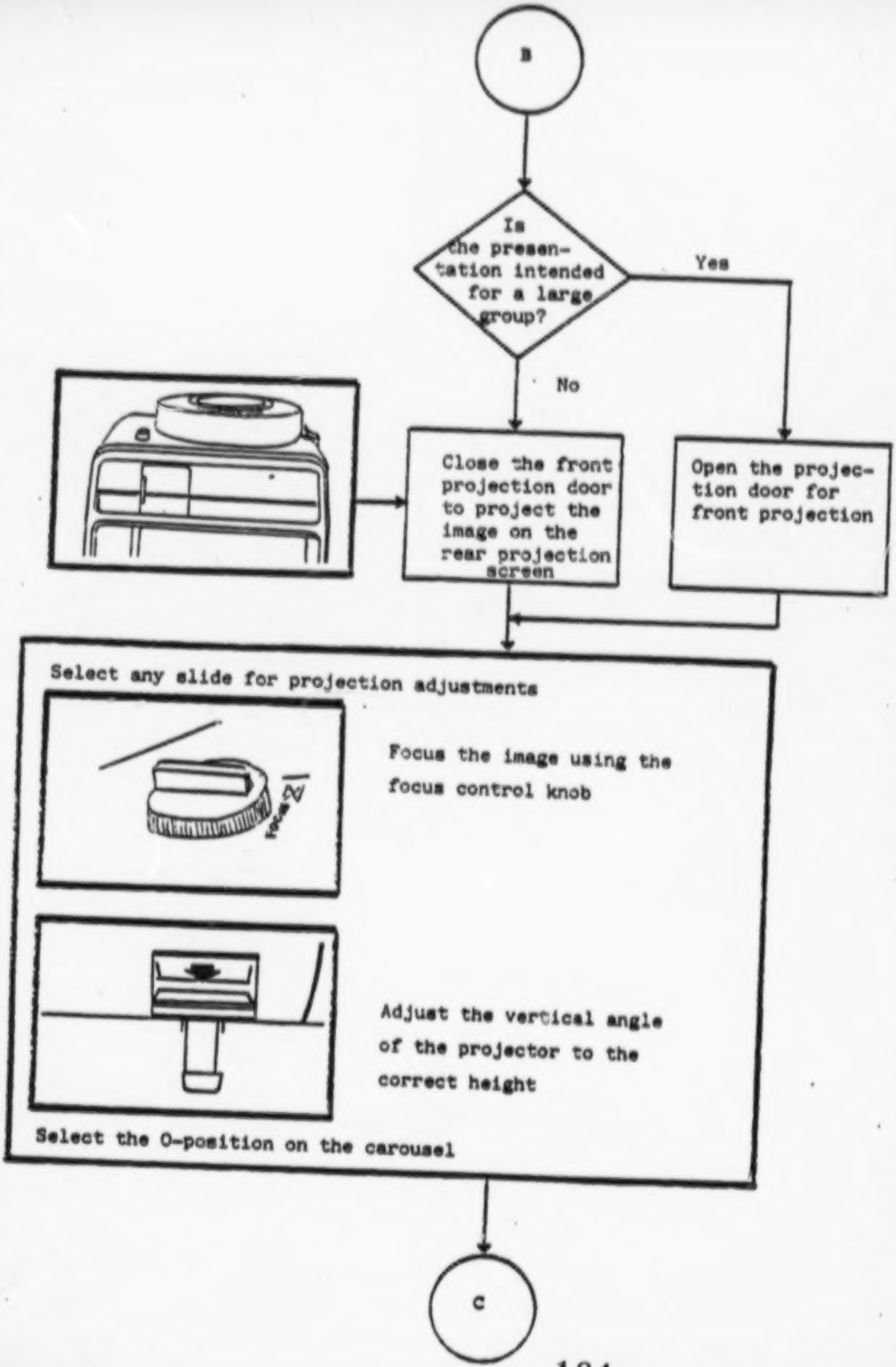
Is this a synchronised slide-sound programme?

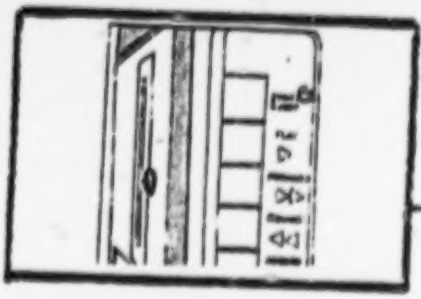
To utilise the remote control, connect it to the correct socket

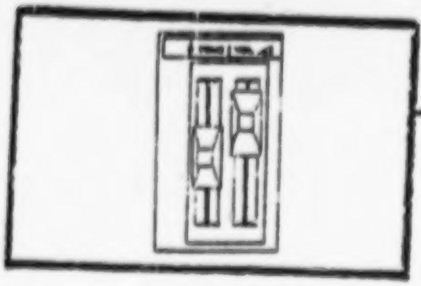
For slide changes forward, press button upwards. Press downwards for slide changes backward

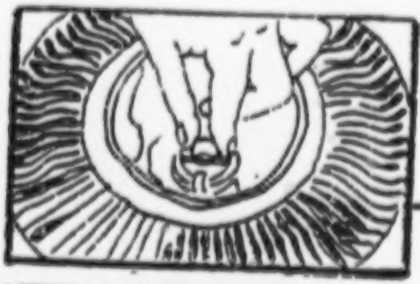
Open the cassette chamber by pressing the appropriate button on the cassette control panel.

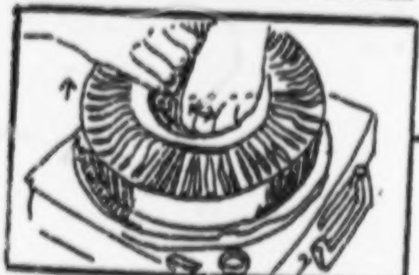
Load the cassette into the cassette chamber, title side facing outwards

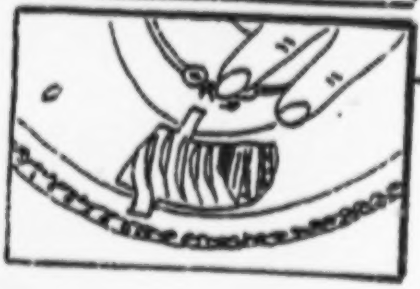

B
Is the presentation intended for a large group?
Yes
No
Close the front projection door to project the image on the rear projection screen
Open the projection door for front projection
Select any slide for projection adjustments
FOCUS
Focus the image using the focus control knob
Adjust the vertical angle of the projector to the correct height
Select the 0-position on the carousel
C

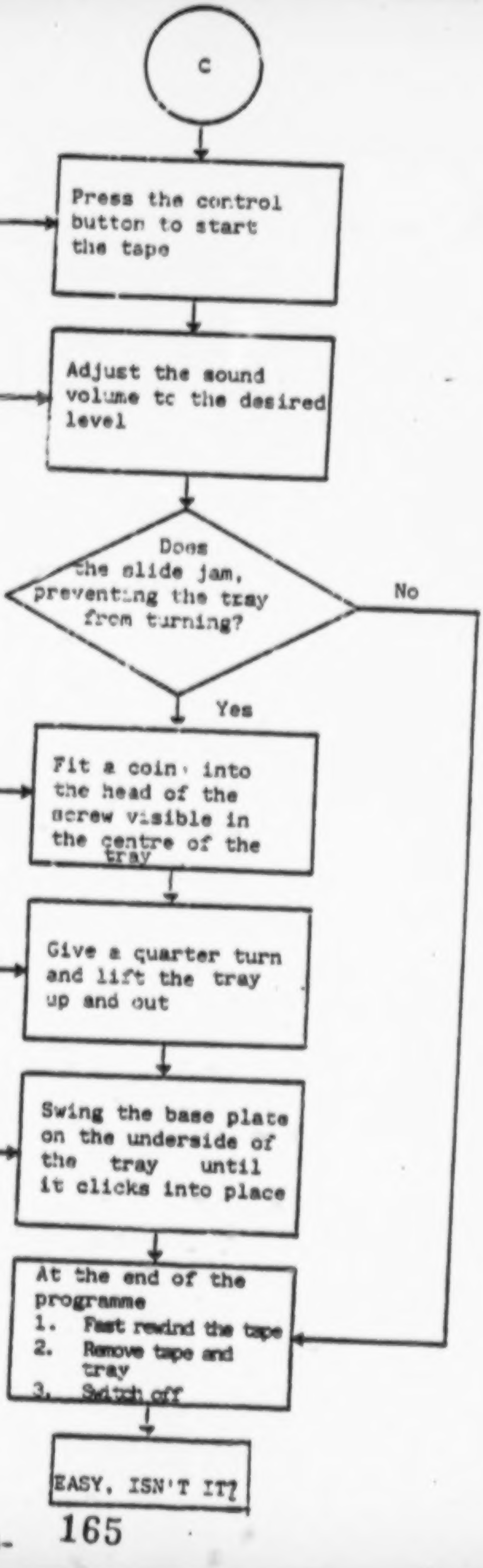











C
Press the control button to start the tape
Adjust the sound volume to the desired level
Does the slide jam, preventing the tray from turning?
No
Yes
Fit a coin into the head of the screw visible in the centre of the tray
Give a quarter turn and lift the tray up and out
Swing the base plate on the underside of the tray until it clicks into place
At the end of the programme
1. Fast rewind the tape
2. Remove tape and tray
3. Switch off
EASY, ISN'T IT?

3.3.5 Workshop

(1) Test your skill

Every teacher should be able to

(a) Load slides into a tray

(b) Connect the power lead and switch on

(c) Fit the tray correctly on to the projector

(d) Load the cassette correctly into the cassette chamber

(e) Change slides forward and backward with or without the aid of the remote control

(f) Remove the tray when it gets stuck

(g) Select a certain slide in the tray quickly

(h) Adjust the size of the projected image

(i) Set a synchronised programme running

(j) Focus the image

(k) Adjust sound volume and tone

(l) Stop the tape

(m) Fast wind and rewind the tape

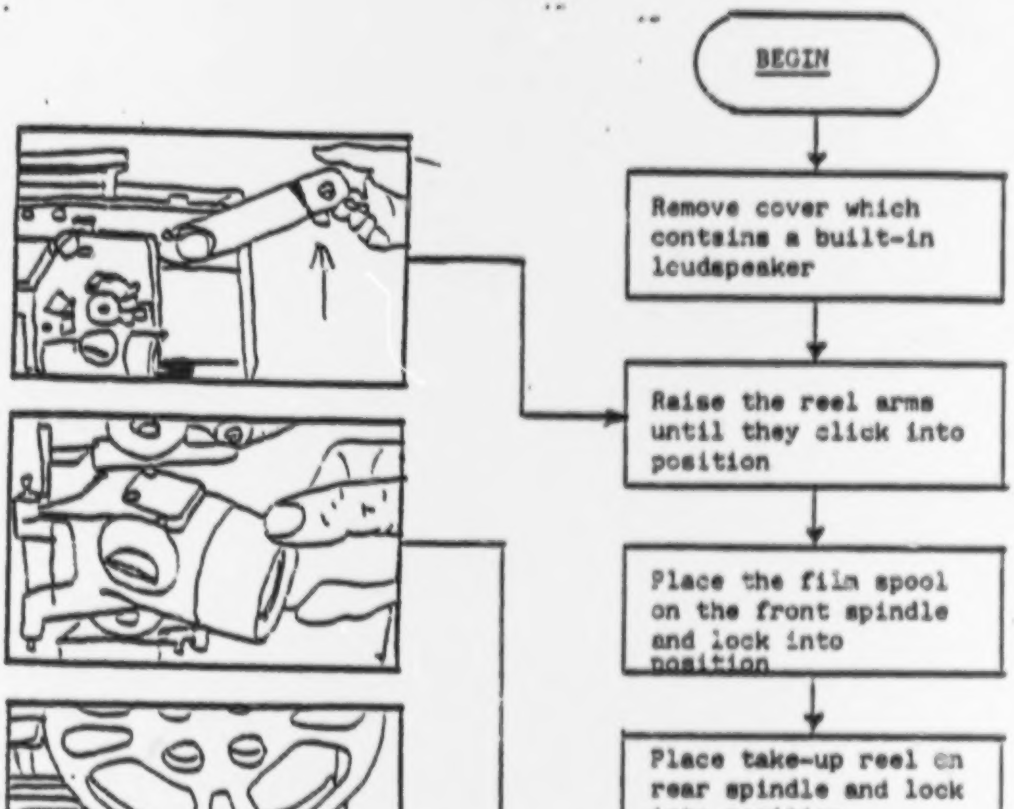
(n) Remove the cassette tape and tray

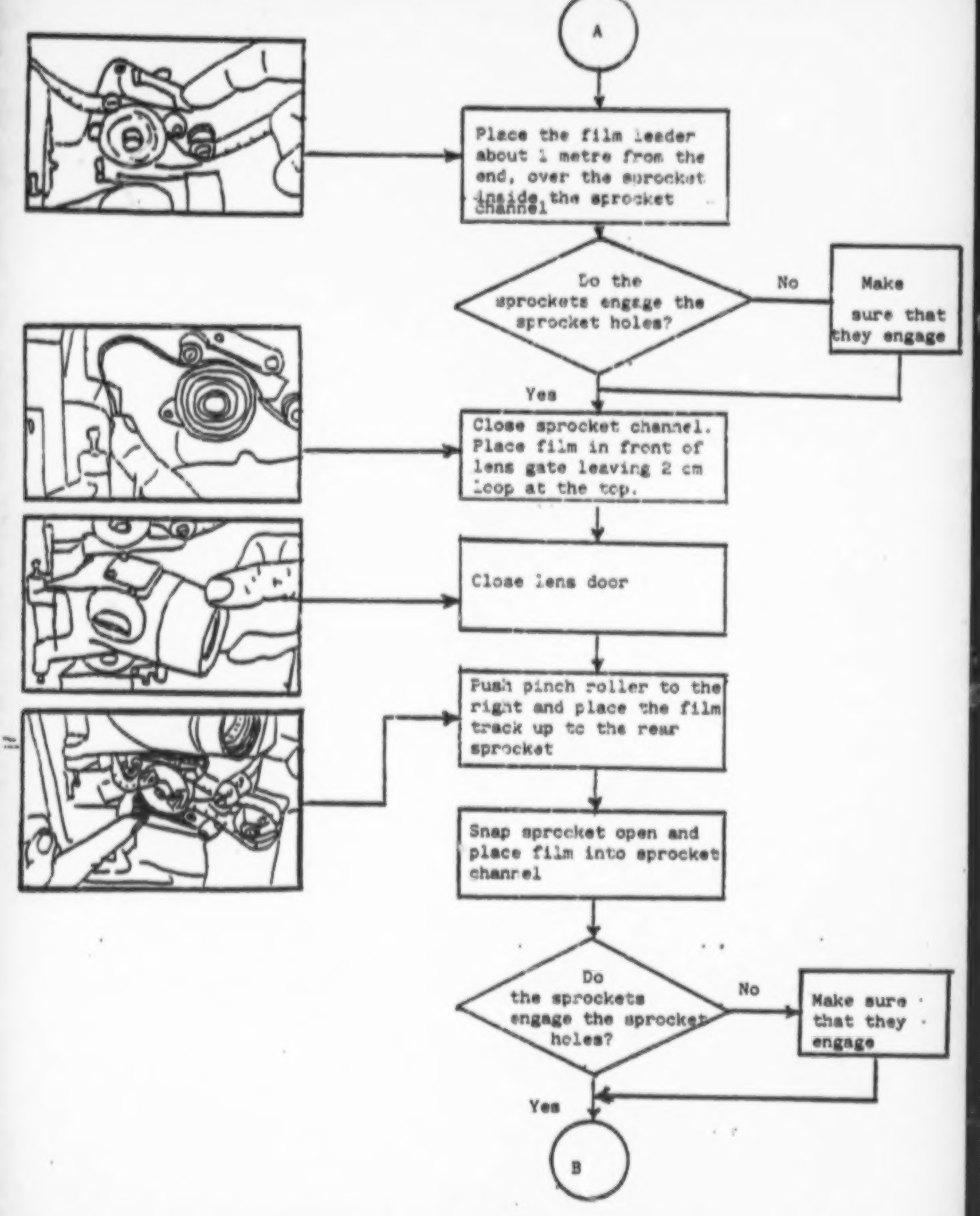
(o) Switch off and disconnect power lead

(2) Features

WORKSHOP: Answer the questions in column A and number the statements B to fit A.

	COLUMN A	NUMBER	COLUMN B
1.	Is the visual image large enough for use by individual pupils?		If the loudspeaker disturbs other people in the vicinity an earphone can be used.
2.	Is the visual image large enough for use by small groups?		Make your own slide-sound programmes to supply your own needs.
3.	Is the visual image large enough for large groups?		If the loudspeaker is a source of disturbance, connect a junction box with several sets of earphone
4.	Are the auditory facilities adequate for use by individual pupils?		Only programmes supplied with 100 Hz pulses for automatic projection can be used
5.	Are the auditory facilities adequate for use by small groups?		Provided use is made for the facility for front projection on to a large screen
6.	Are the auditory facilities adequate for use by large groups?		Slides have to be changed manually. Use remote control.
7.	Can the slide-sound projector be used for slide series without a tape?		The loudspeaker has a capacity of 5 watts.
8.	Can die slide-sound projector be used as a cassette tape recorder?		The built-in rear projection screen is very suitable for use by an individual person.
9.	Can the slide-sound projector be used effectively in a hall filled with people?		The size of the machine and the continuous operation of the slide changing mechanism will be distracti
10.	Can the slide-sound projector be used from the projection room in the school hall?		A group of four to five pupils can comfortably use the built-in screen.
11.	Can any synchronised slide-sound programme be used with the projector?		Because of the low light output a well darkened hall would be needed to get a sufficiently bright image of adequate size.
12.	Can synchronised slide-sound programmes be manufactured by the teacher?		The slide-sound projector is not fitted with a lens designed to project over long distance


BEGIN
Remove cover which contains a built-in loudspeaker
Raise the reel arms until they click into position
Place the film spool on the front spindle and lock into position
Place take-up reel on rear spindle and lock into position
Open lens door and unloop ± one metre of film leader from the supply reel
Snap the front sprocket open to allow threading of film
A



Place the film leader about 1 metre from the end, over the sprocket inside the sprocket channel

Do the sprockets engage the sprocket holes?

Make sure that they engage

Close sprocket channel. Place film in front of lens gate leaving 2 cm loop at the top.

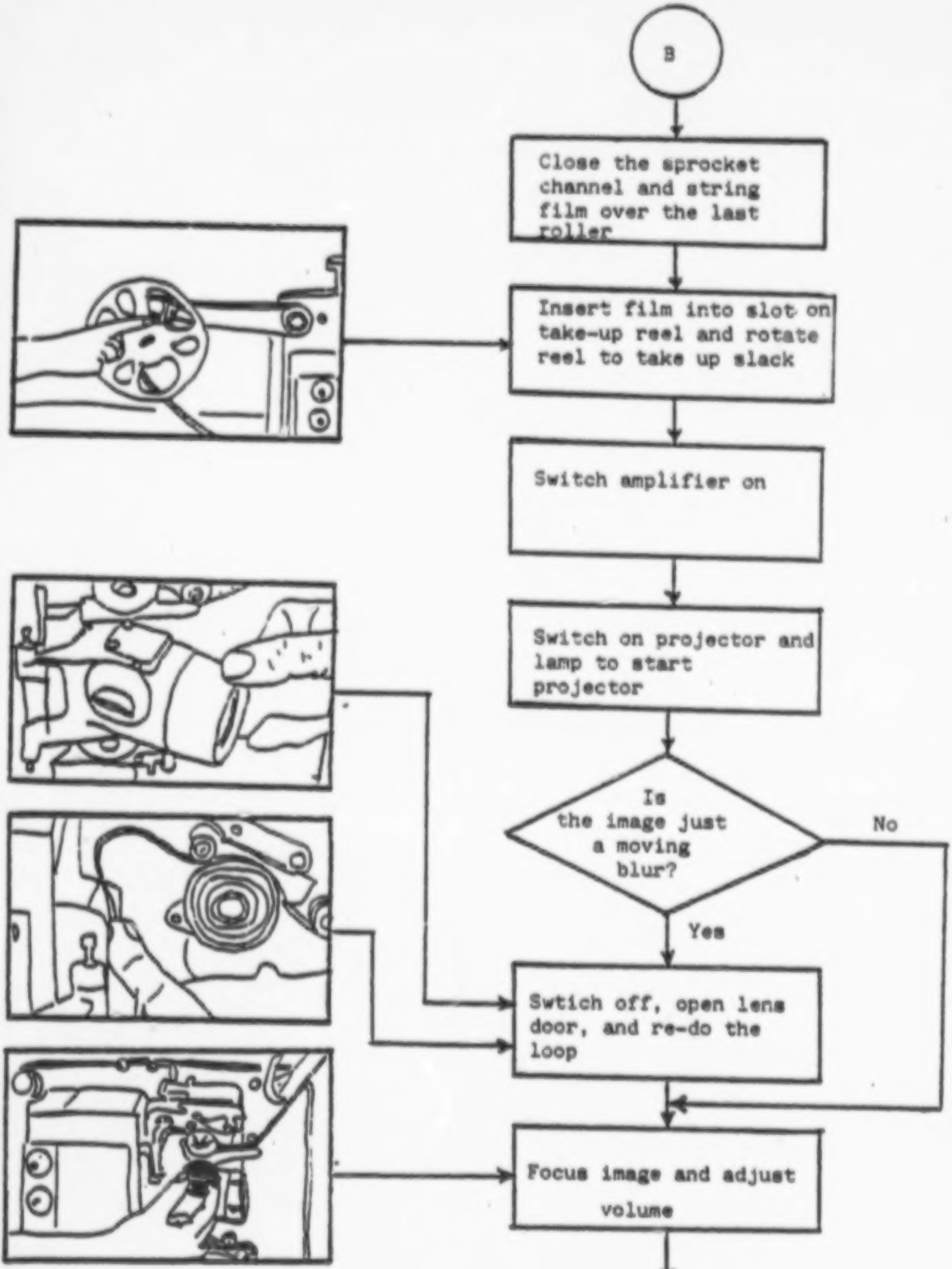
Close lens door

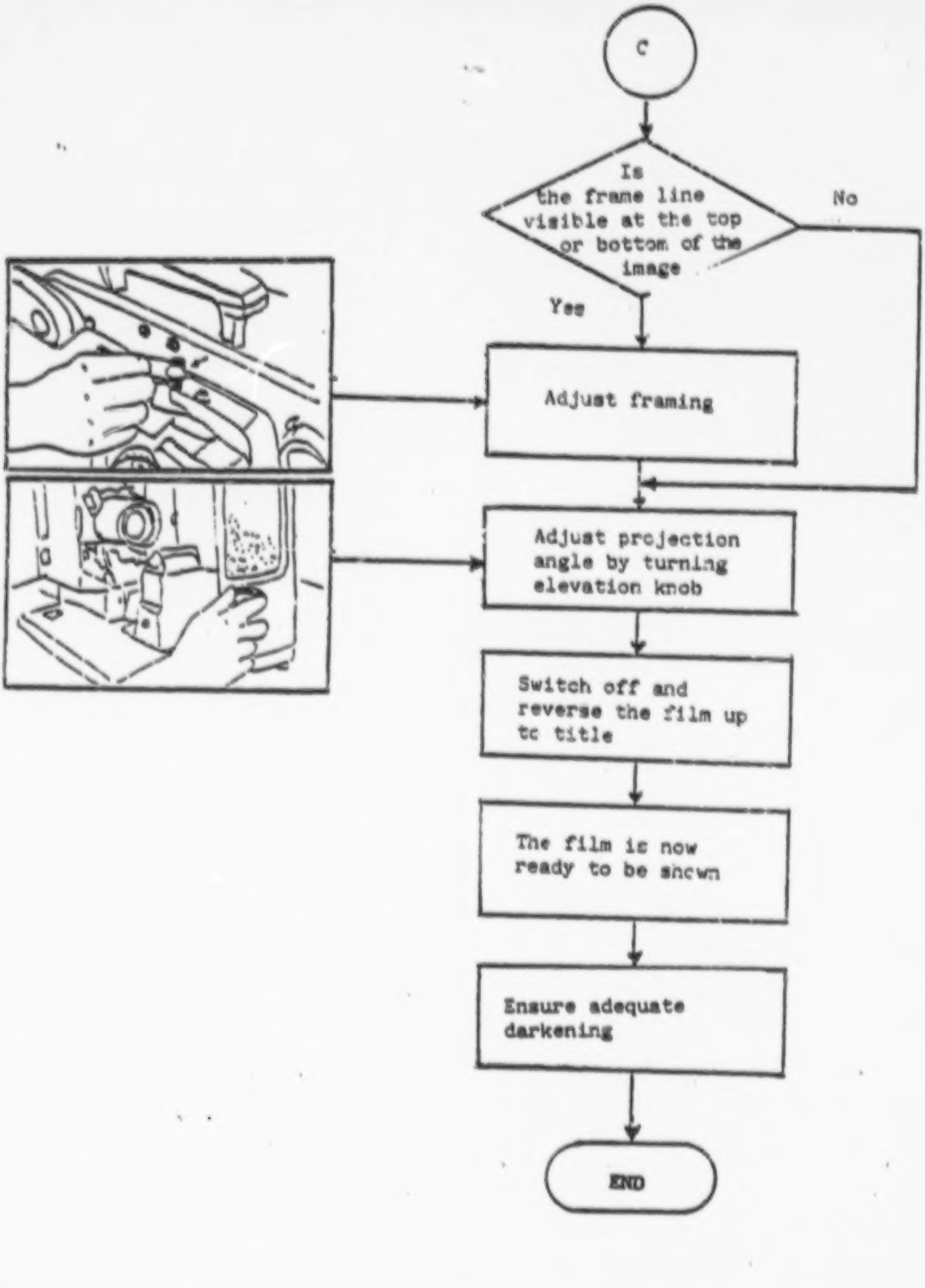
Push pinch roller to the right and place the film track up to the rear sprocket

Snap sprocket open and place film into sprocket channel

Do the sprockets engage the sprocket holes?

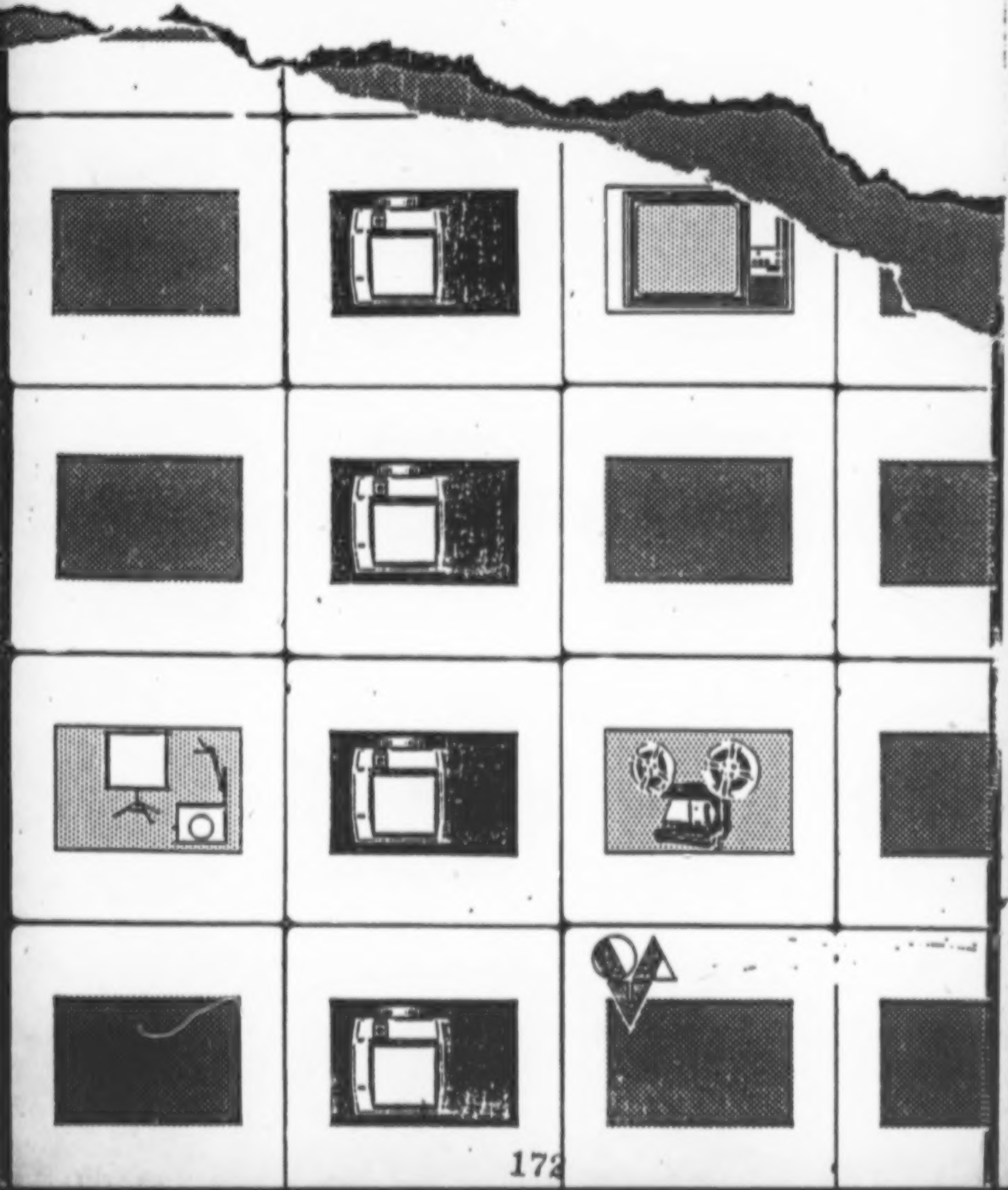
Make sure that they engage


B
Close the sprocket channel and string film over the last roller
Insert film into slot on take-up reel and rotate reel to take up slack
Switch amplifier on
Switch on projector and lamp to start projector
Is the image just a moving blur?
No
Yes
Swtich off, open lens door, and re-do the loop
Focus image and adjust volume
C


C
Is the frame line visible at the top or bottom of the image
No
Yes
Adjust framing
Adjust projection angle by turning elevation knob
Switch off and reverse the film up to title
The film is now ready to be shown
Ensure adequate darkening
END

PROJECTION PRINCIPLES

⑥



4. PROJECTION PRINCIPLES

4.1 General principles
4.2 Size of projection
4.3 Rear projection
4.4 Positioning of screen and audience
4.5 Positioning of projector and screen

4.1 General principles

The most important factor to be considered when projecting images is the RELATION OF AUDIENCE TO PROJECTION SCREEN. The principle is very simple. Large projectors for large audiences or smaller projectors for smaller audiences.

Projection size is also determined, however, by factors such as the type of medium used, the positioning of screen and projector, the focal length of the lens used, the light output of the projector, the techniques used in the preparation and manufacture of the programme and the size of the available screen. In order to project a given size image, each of these factors has to be taken into account.

4.1.1 Positioning of projector and screen

It is common knowledge that a short distance between projector and screen results in a small projection image while a longer distance between projector and screen creates a bigger picture.

4.1.2 Focal length of lens

Lenses of various focal lengths are usually available for a specific projector. The focal length is usually indicated on the ring around the glass 'eye'. A lens with a focal length of 100 mm will project a much larger image than one with a 150 mm focal length. In some cases the focal length of a lens is adjustable so that the image can be adjusted to the required size.

The table indicates the relation between focal length and projection distance.

PROJECTION DISTANCE TABLE FOR KODAK EKTAGRAPHIC SLIDE PROJECTORS
(Projection distances are approximate and are measured from projector gate to screen.)

Lens Focal Length										Screen Image Dimensions				
1.4 35	2 50	2½ 60	3 75	4 100•	5 125•	7 180	9 230	11 280	4 to 6 (Zoom) 100 to 150*	135—35 mm	126	Super-Slide	Single-Frame Filmstrip	110
Projection Distances														
2 0.6	3 0.8	3½ 1.1	4 1.3	5½ 1.7	7 2.1	10 3.0	12½ 3.8	15½ 4.7	5½ to 8½ 1.7 to 2.5	13⅓ x 20 0.33 x 0.50	15½ sq 0.39	22 sq 0.56	10 x 13 0.25 x 0.33	7 x 9 0.18 x 0.23
3 0.8	4 1.2	5 1.6	6 1.8	8 2.4	10 3.0	14 4.3	18 5.5	22½ 6.7	8 to 12 2.4 to 3.6	20 x 30 0.50 x 0.75	23 sq 0.58	33 sq 0.83	15 x 19½ 0.37 x 0.49	10½ x 14 0.26 x 0.35
3½ 1.1	5¼ 1.6	6½ 2.0	8 2.3	10½ 3.1	13 3.9	18½ 5.6	24 7.2	29 8.8	10½ to 16 3.1 to 4.7	27 x 40 0.67 x 1.00	31 sq 0.77	44½ sq 1.11	20 x 26½ 0.50 x 0.66	14 x 18½ 0.34 x 0.46
4½ 1.4	6½ 1.9	8 2.5	10 2.9	13 3.9	16½ 4.8	23 6.9	29½ 8.9	36 10.8	13 to 19½ 3.9 to 5.8	33½ x 50 0.84 x 1.25	38½ sq 0.97	55½ sq 1.39	25 x 33 0.62 x 0.82	17½ x 23 0.44 x 0.58
5½ 1.6	8 2.3	9½ 3.0	11½ 3.4	15½ 4.6	19½ 5.7	27 8.3	35 10.6	42½ 12.8	15½ to 23½ 4.6 to 6.9	40 x 60 1.00 x 1.50	46½ sq 1.16	66½ sq 1.67	30 x 39½ 0.75 x 0.99	21 x 27½ 0.53 x 0.69
6½ 1.5	9½ 2.7	11½ 3.5	14 4.0	18½ 5.3	22 6.6	32½ 9.6	41½ 12.2	51 14.9	18½ to 28 5.3 to 8.0	48 x 72 1.17 x 1.75	56 sq 1.36	80 sq 1.94	36 x 47½ 0.87 x 1.15	25 x 33½ 0.61 x 0.81
8½ 2.4	12 3.6	13½ 3.9	16½ 4.8	24½ 6.0	30½ 7.6	43 10.9	55 13.9	67 16.9	24½ to 36½ 6.6 to 9.1	64½ x 96 1.34 x 2.00	74½ sq 1.55	106½ sq 2.22	47½ x 63 0.99 x 1.32	33½ x 44½ 0.70 x 0.92
10½ 3.1	15 4.5	19 5.8	23 6.7	30½ 9.0	38 11.2	55 16.2	68½ 20.6	83½ 25.1	30½ to 45½ 9.8 to 13.5	80½ x 120 2.00 x 3.00	93 sq 2.32	133½ sq 3.33	60½ x 79 1.49 x 1.97	42 x 55½ 1.05 x 1.39
12½ 4.2	18 5.9	22½ 7.7	27 8.9	38½ 11.9	48½ 14.9	69½ 21.4	91½ 27.4	100 33.3	38½ to 54½ 11.9 to 17.8	96½ x 144 2.68 x 4.00	111½ sq 3.10	160 sq 4.44	71½ x 96 1.99 x 2.63	50½ x 66½ 1.40 x 1.85

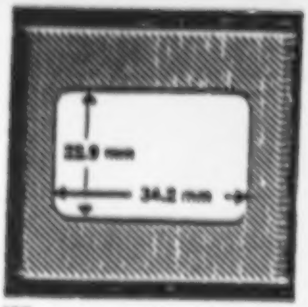
NOTE: The metric figures in this table are based on specified width dimensions for the 135 (35 mm) image sizes and are not direct conversions of the inch/foot figures.

(Kodak, 1972 : 18)

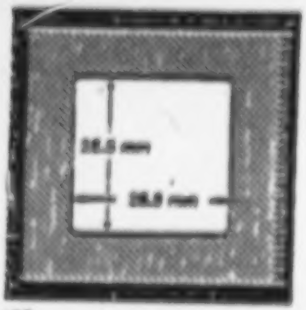
4.1.3 The kind of medium

Slides of different sizes are generally known. The most commonly known is the difference in size between a slide taken with a 135 - film (35mm camera) and that taken with a 126 - film (instamatic camera).

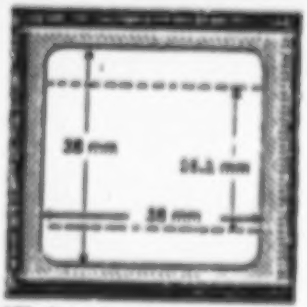
Filmstrips use the well known single frame size. The influence of these different sizes of slides on the size of the projected image is quite evident. The larger the aperture of the slide the larger the projected image and vice versa.



135



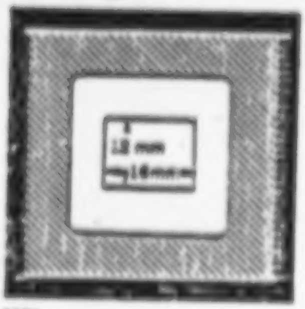
126



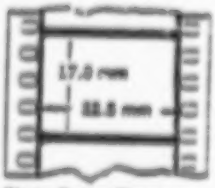
127—Super-Slide (38 x 38 mm)
828—(26.2 x 38 mm)

NOMINAL APERTURE
DIMENSIONS* OF 2 X 2-INCH
SLIDE MOUNTS
(shown full size)

[illegible]



110†



Single-Frame Filmstrip
(shown full size)

(Kodak, 1977 : 18)

4.1.4 Light output of the projector

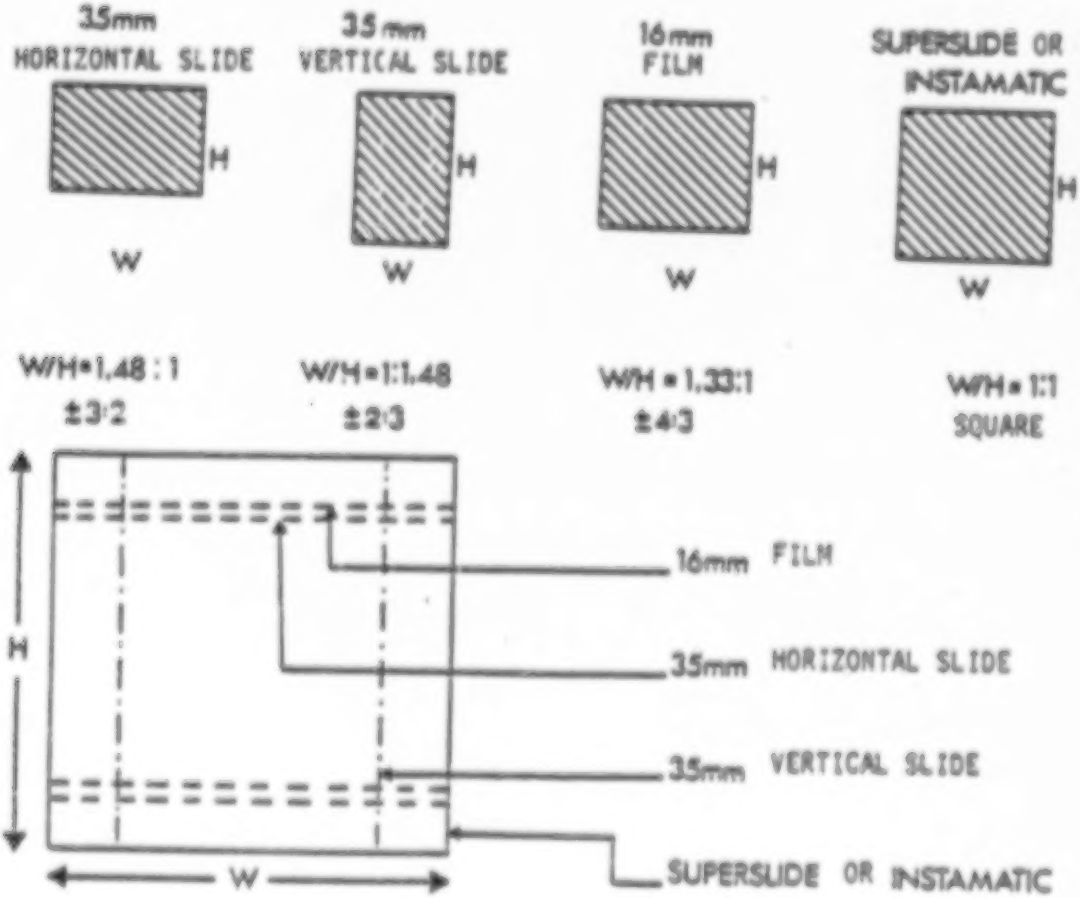
The larger the projected image the more widely spread the available light becomes. The same projector that would provide a faint, dim image when projecting over a long distance, would give a bright, clear image over a shorter distance. Thus, to project a large image clearly the projector's light source should be powerful enough.

4.1.5 Techniques used for a programme

Programmes are often of poor visual design and technique, because they are overloaded with visual information. Too much detail in an image forces the user to make a large projection in order to reveal all detail clearly. The projection should not have to be adjusted merely to compensate for shortcomings of a programme.

4.1.6 Size of the screen

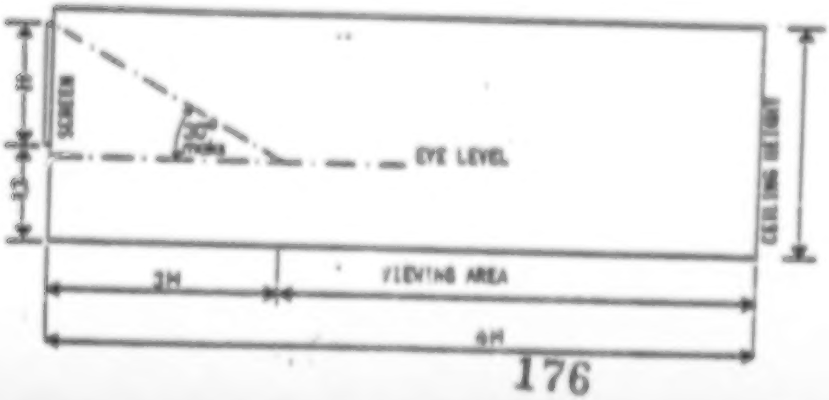
Different types of projection media require different width to height ratios. Make sure that your screen can accommodate all projection formats.


35mm
HORIZONTAL SLIDE
35mm
VERTICAL SLIDE
16mm
FILM
SUPERSLIDE OR
INSTAMATIC
H
W
W/H=1.48 : 1
±3:2
W/H=1:1.48
±2:3
W/H = 1.33:1
±4:3
W/H = 1:1
SQUARE
H
W
16mm FILM
35mm HORIZONTAL SLIDE
35mm VERTICAL SLIDE
SUPERSLIDE OR INSTAMATIC

(C.S.I.R. 1973 : 3)

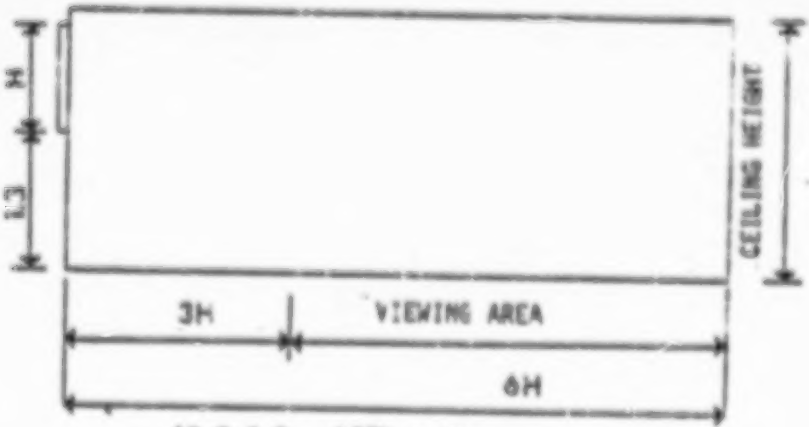
4.2 Size of projected image

The recommended minimum distance between viewer and screen is 2H, i.e. 2 x the height, while the recommended maximum distance is 6H, i.e. 6 x the height.


H
SCREEN
30°
EYE LEVEL
CEILING HEIGHT
2H
VIEWING AREA
6H

To eliminate obstruction by heads and shoulders the screen should be ± 1,2 m above the floor.

Limited ceiling height is often a problem which necessitates a smaller screen and therefore a smaller audience area.

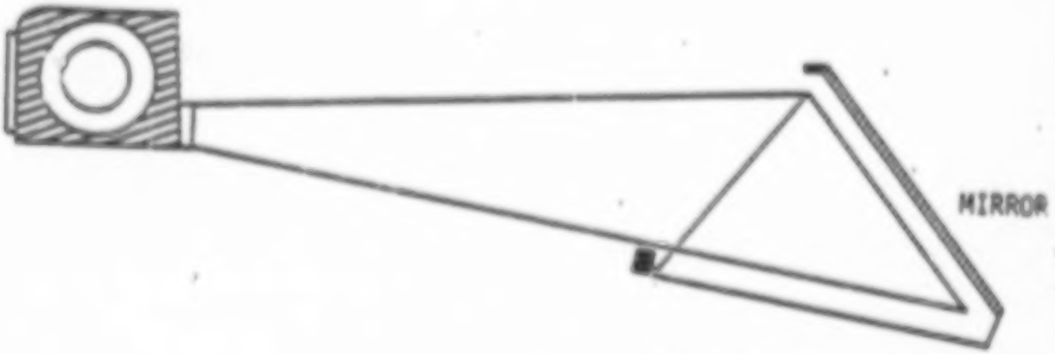

H
1,2
CEILING HEIGHT
3H
VIEWING AREA
6H

(C.S.I.R. 1973 : 39

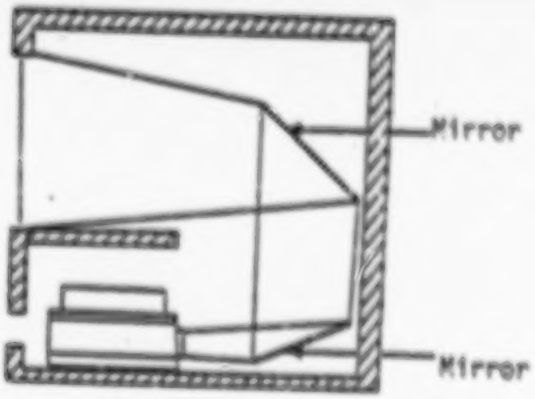
4.3 Rear projection.

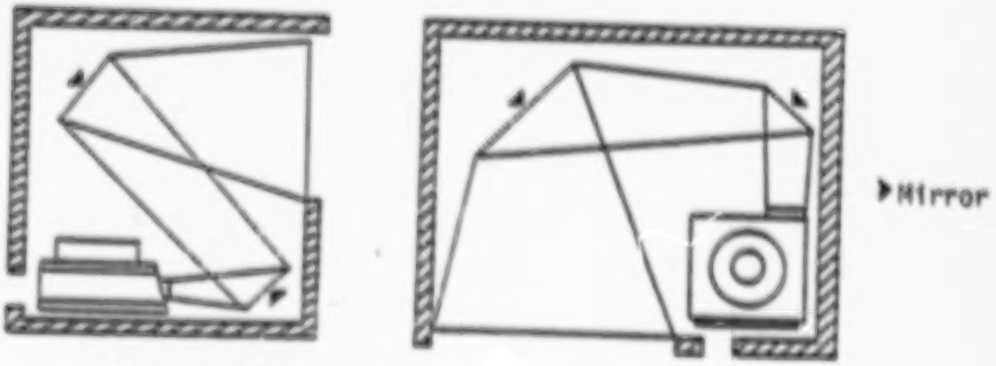
Inadequate darkening is a common problem for teachers. Rear projection may be the answer here because images projected on a rear projection screen are usually bright and clearly visible. The built-in screen of the slide-sound projector is a good example of a rear projection screen that can be used in rooms without darkening facilities.

1 SIMPLE REAR PROJECTION


MIRROR
REAR PROJECTION SCREEN

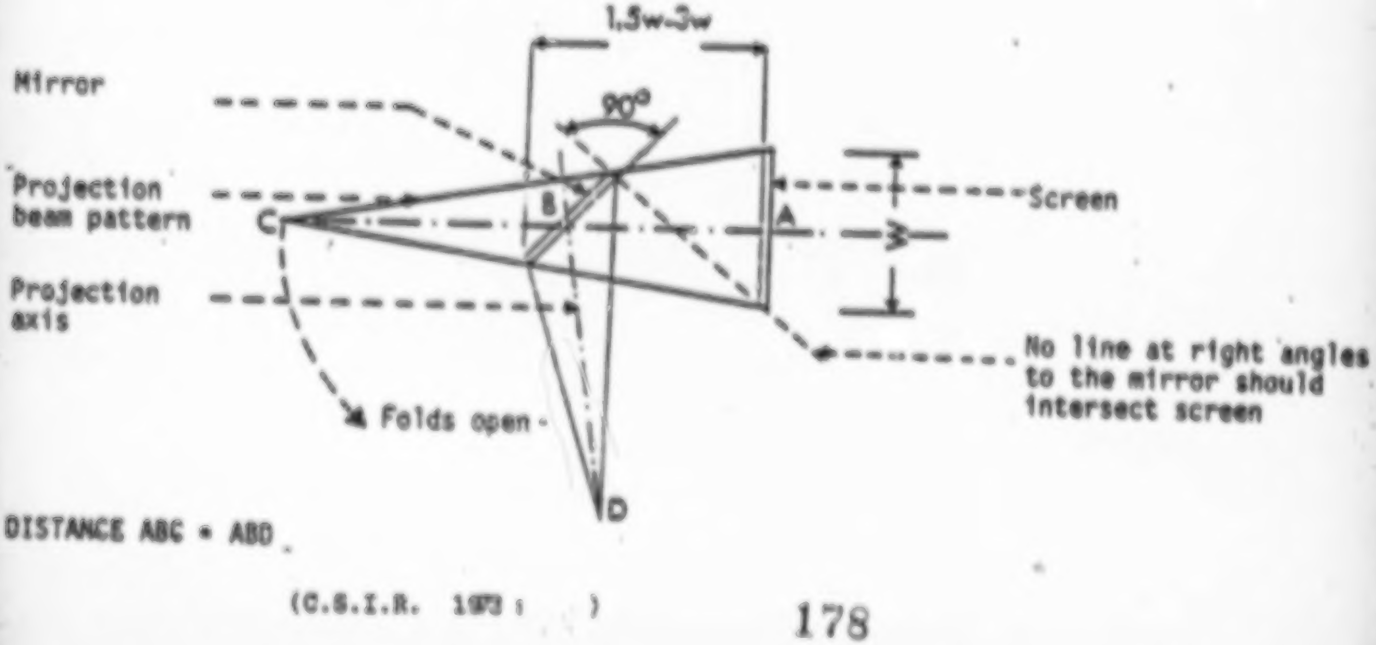
COMPLICATED MODULES


Mirror
Mirror



(Kodak, 1978 :   )

When a rear projection module is planned the following technical aspects should be kept in mind:


1,5w-3w
90°
Mirror
Projection beam pattern
Projection axis
C
B
A
Screen
W
No line at right angles to the mirror should intersect screen
Folds open
D
DISTANCE ABC = ABD

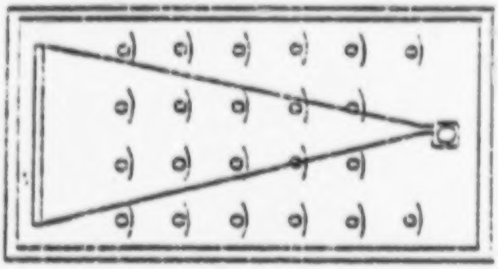
(C.S.I.R. 1973 :   )

178

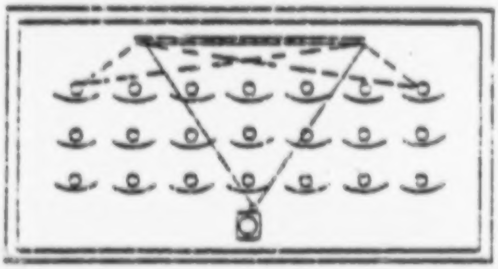
4.5 Positioning of screen and audience

Workshop

Consider the angle at which the image is observed and determine which is the correct positioning.

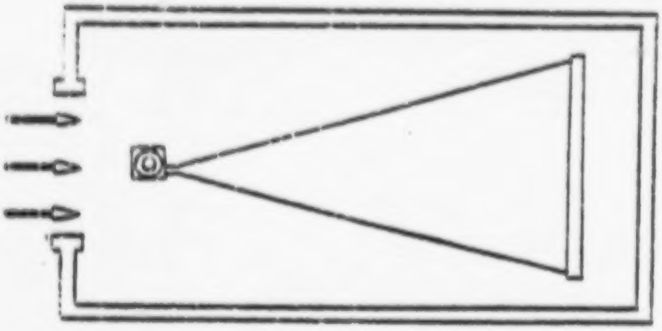


RIGHT/WRONG

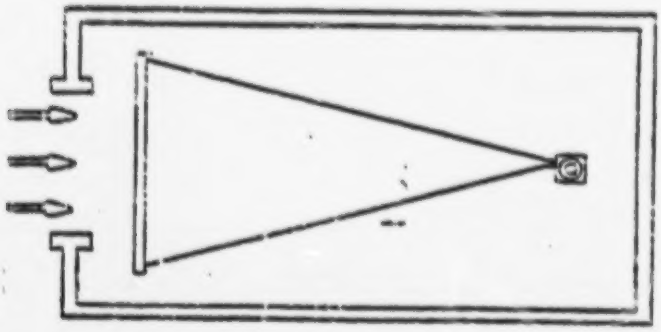


RIGHT/WRONG

Consider the direction from which light enters the room and then determine which positioning is correct.



RIGHT/WRONG

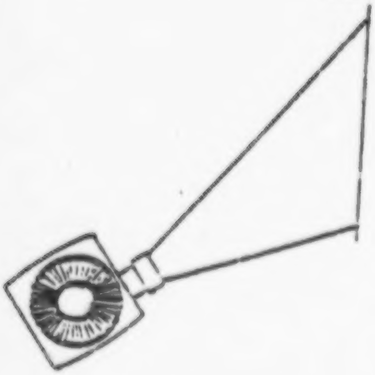


RIGHT/WRONG

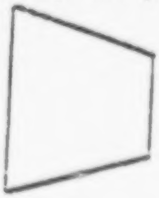
4.6 Positioning of projection and screen

Workshop

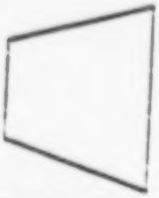
(1) Which keystone distorted image (a), (b), (c) or (d) will be caused by the positioning illustrated below?



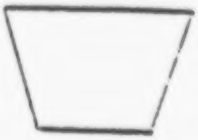
(a)



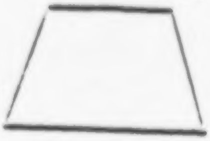
(b)



(c)

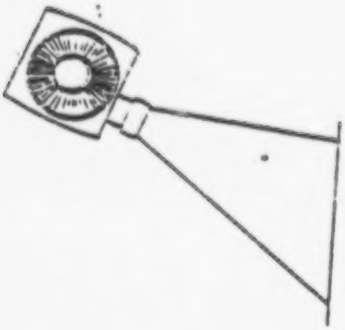


(d)

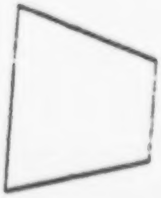


How can it be corrected?

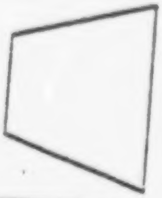
(2) Which keystone distorted image a,b, c or d is caused by this positioning?



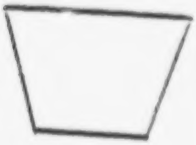
(a)



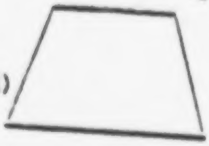
(b)



(c)

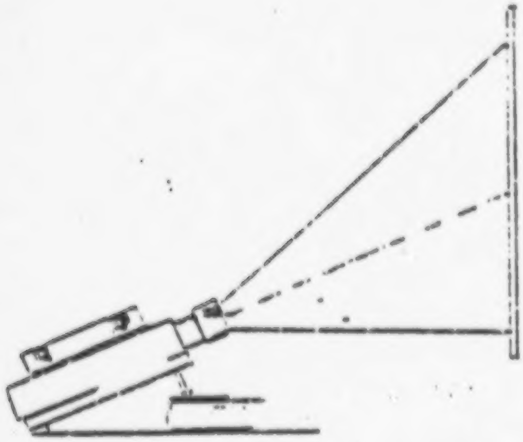


(d)

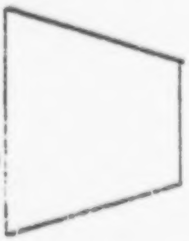


How can it be corrected?

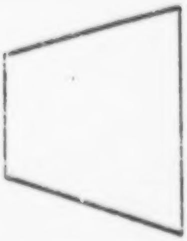
(3) Which keystone distorted image a, b, c, or d is caused by this positioning?



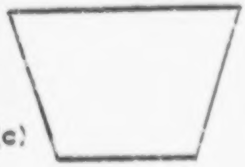
(a)



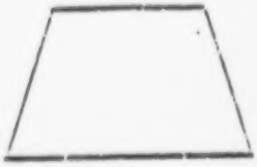
(b)



(c)



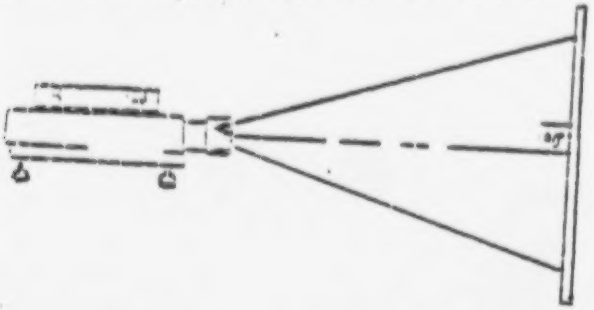
(d)

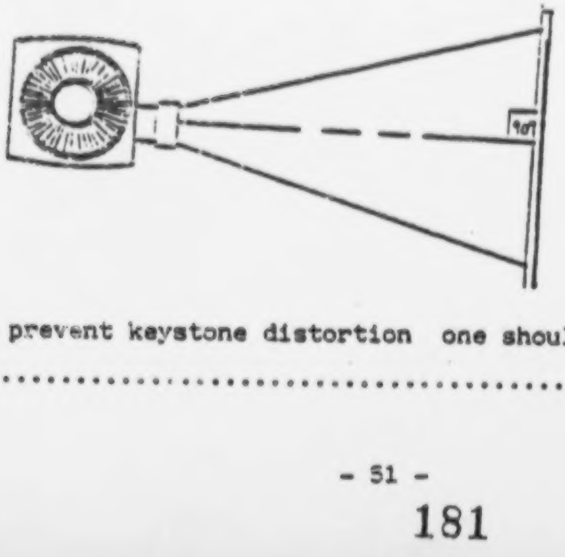


How can it be corrected?

How can it be eliminated?

(4) Study the following sketches and formulate a principle for the correction of keystone distortion.





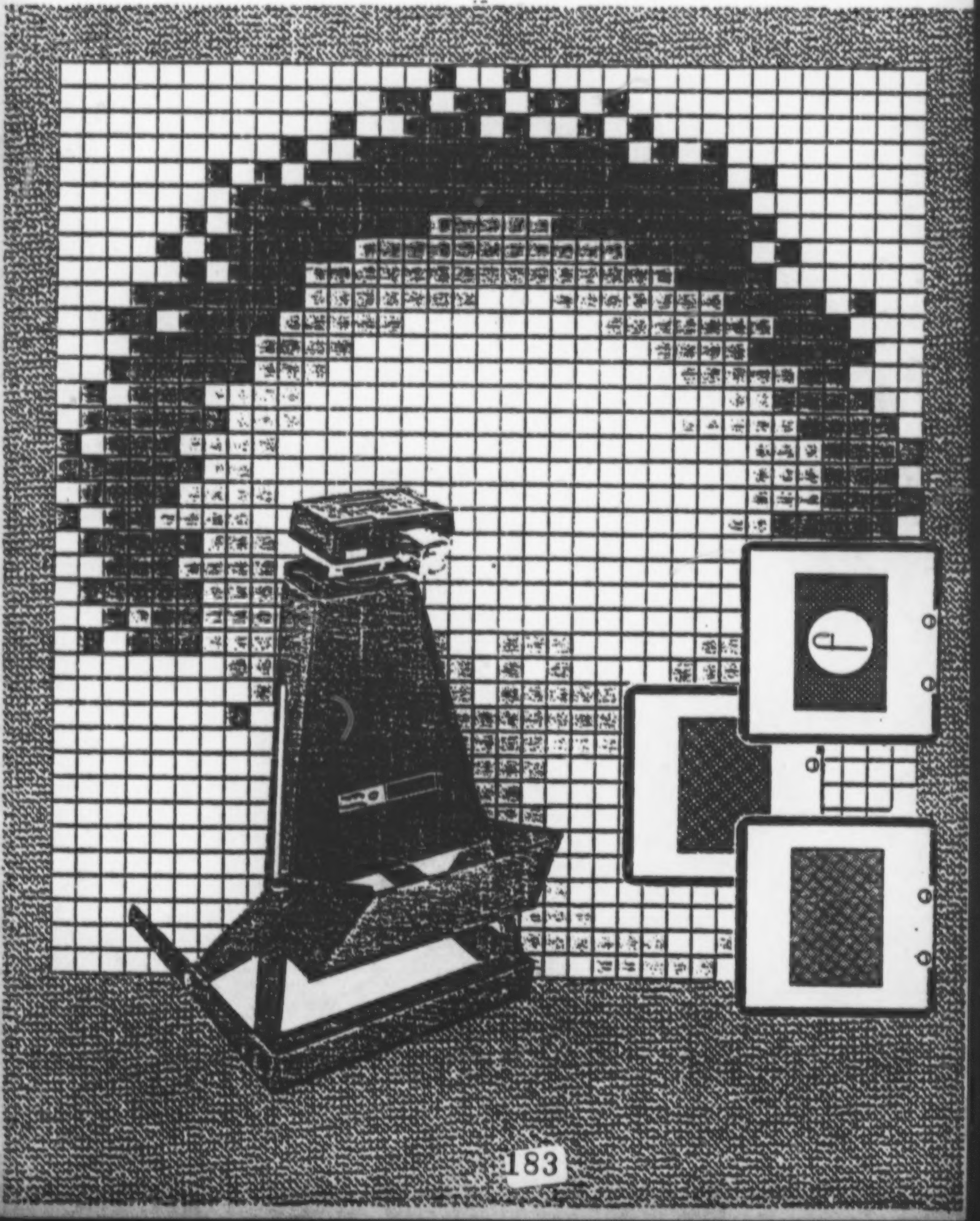
To prevent keystone distortion one should ....
....

4.7 The image and the viewer

The projected image should not be closer than twice the height of the image from the closest viewer, or farther than six times the height of the image from the farthest viewer.

Height of Image	Closest viewer	Farthest viewer
0,5m	1m	3m
1,0m	2m	6m
1,5m	3m	9m
2,0m	4m	12m
2,5m	5m	15m
3,0m	6m	18m

PHOTOGRAPHY AND GRAPHICS ⑥



5. PHOTOGRAPHY AND GRAPHICS

5.1 Photography

- 5.1.1 Introduction
- 5.1.2 Basic principles of photography
- 5.1.3 The automatic camera (Instamatic)
- 5.1.4 The 35 mm camera

5.2 Graphics

- 5.2.1 Introduction
- 5.2.2 An example of graphics for slide-sound programmes

5.1 Photography

5.1.1 Introduction

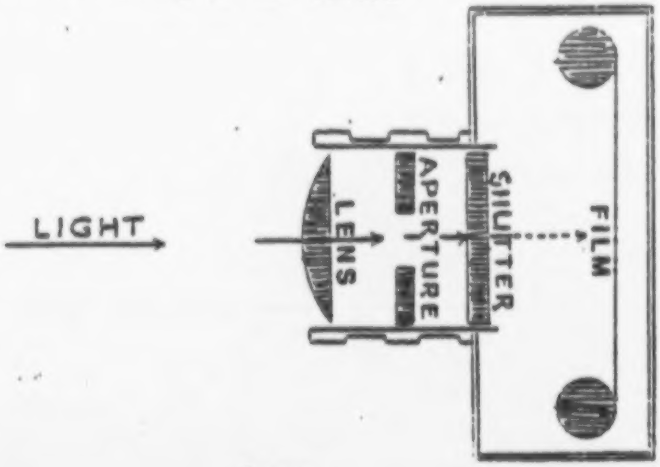
The concept of photography is well known and photographs in newspapers and books, advertisements and on television are part of our everyday existence.

Proper training and extensive experience is essential for the professional photographer.

Good clear photographs or slides can, however, be applied with great success if the teacher knows the basics of photography and can use a camera effectively.

5.1.2 Basic principles of photography

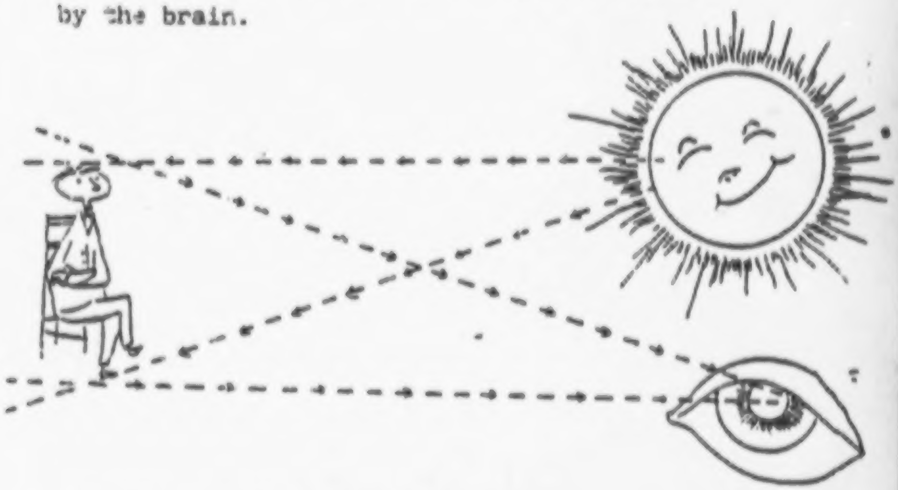
(1) Functioning of the camera



Basically the camera is a light-tight enclosure into which is placed a light sensitive film. The camera is equipped with a lens which projects the image on to the film. A lens aperture and a shutter, situated between the lens and the film, make it possible to regulate the projection of light on to the film.

(2) Light intensity

In the dark very little is visible, but as light becomes available objects become visible. Visibility means basically that the light falling on an object is reflected; the reflected light is received by the eye and the image is decoded by the brain.



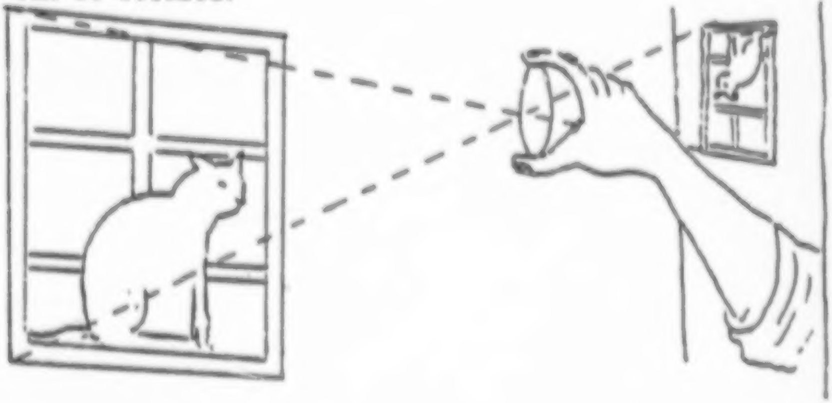
The same principle applies to the camera. The camera takes a photograph of an object when light falling on the object is reflected, reaches the lens of the camera and is transferred to the film. The stronger the light source illuminating the object, the brighter the image projected on to the film and the better the result. Too much or too little light is often the cause of a poor photograph.

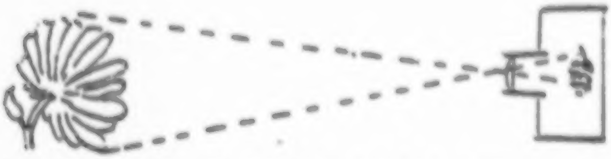
N.B. The available light, or light intensity is therefore of cardinal importance in photography.

(3) The lens

When a convergent lens eg. an ordinary magnifying glass, is held in a room opposite a window and a few centimetres from the wall, an inverted picture of the window will be projected on the wall.

By moving towards or away from the wall the image can be focused.





Thus with the aid of the camera lens a sharply focused image can be projected on to the film.

(4) Lens aperture

Behind the camera lens the lens aperture is situated. This is a hole that can be enlarged or made smaller. A large lens aperture lets through a greater quantity of light from the lens to the film than a small one.

N.B. Thus the lens aperture enables the photographer to regulate the amount of light reaching the film.

(5) The shutter

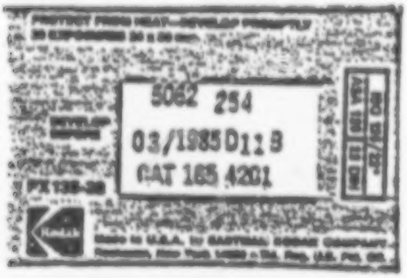
The shutter, between the lens aperture and the film, shuts out all light from the inside of the camera and is opened for a brief period of time when a photograph is being taken and the film is exposed. The time during which the shutter remains open is predetermined so that the film is exposed for a precise period of time.

N.B. While the lens aperture regulates the quantity of light, the shutter controls the length of time for which exposure to light takes place.

(6) The film

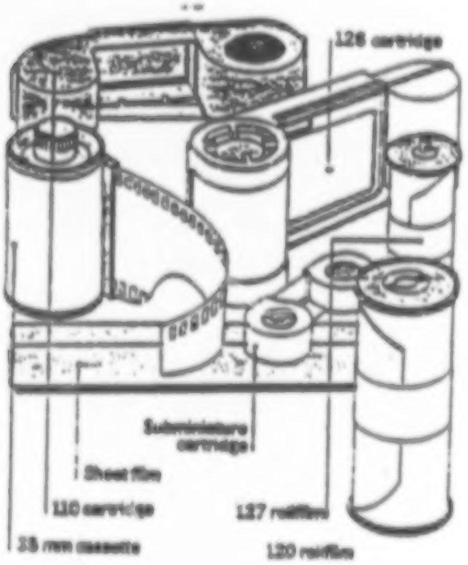
The film consists of a translucent material, covered on one side with a light-sensitive chemical emulsion. Light reaching this layer causes a change in the chemical composition of the emulsion which becomes visible when it is developed.

Films can differ regarding their sensitivity to light. A highly sensitive film requires a smaller amount of light to produce a good photo image than a less sensitive film. The sensitivity of a film is indicated by a number (ASA/DIN) which is clearly marked on the film container.

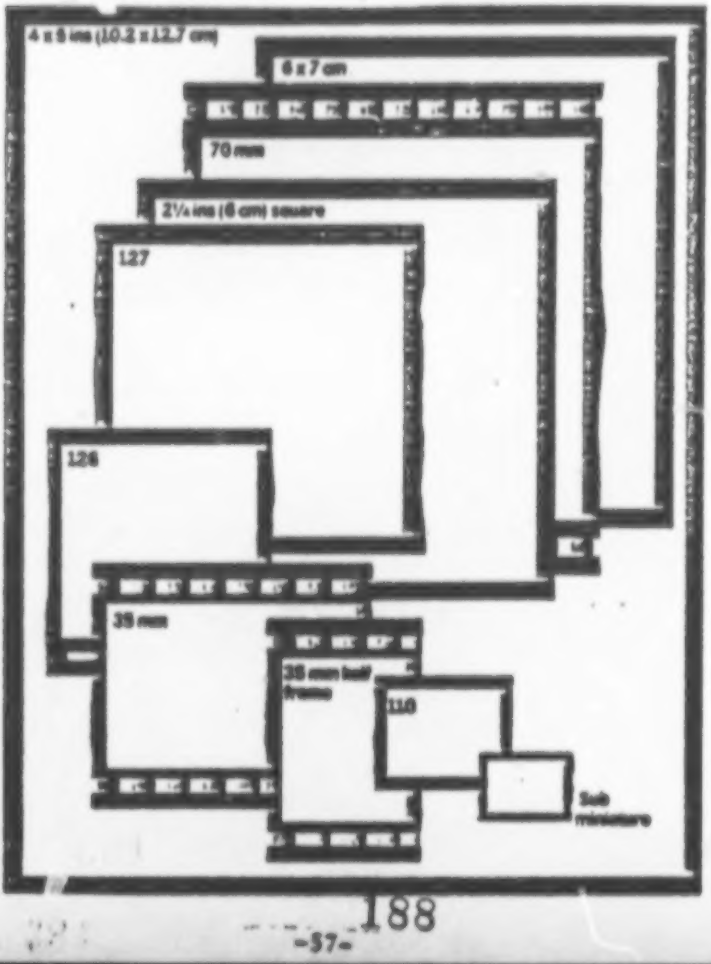


The I S O number indicates an international standard while ASA is American and DIN is European. I S O and ASA numbers are the same. The higher the number the higher film sensitivity.

Films are obtainable in different sizes. Make sure, therefore, that the film you buy is the right format for your particular camera.


126 cartridge
Subminiature cartridge
Sheet film
110 cartridge
127 rollfilm
35 mm cassette
120 rollfilm

Different formats.


4 x 5 ins (10.2 x 12.7 cm)
6 x 7 cm
70 mm
2¼ ins (6 cm) square
127
126
35 mm
35 mm half frame
110
Sub miniature

5.1.3 The automatic (instamatic) camera

It is important to remember that as long as the capabilities and limitations of these cameras are taken into account, useful photographs can be taken with them.

(i) Features

(a) Focus adjustment

It has a fixed lens that requires no focus adjustment. These lenses are prefocused and will produce a sharply focused image at any distance over two metres.

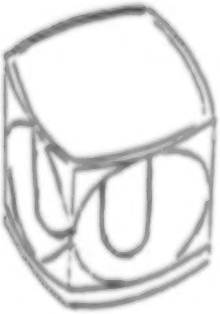
(b) Lens aperture

An appropriate lens aperture is usually selected automatically by a photo-sensitive cell which measures light intensity and selects a suitable aperture. If the light is too poor for even the largest aperture to produce a picture, a red light will come on in the view finder or the shutter will lock, preventing an exposure being made. All these functions are powered by a small battery which has to be replaced periodically.

(c) Flash

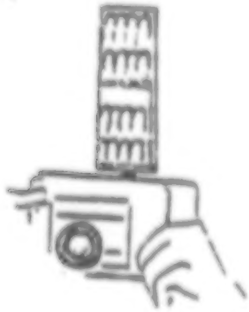
- Flash cubes

To take photographs in poor light, flash cubes can be used. A flash cube contains four flashes, one on each vertical plane. As the film is wound on the flash cube rotates one quarter of a turn to direct a fresh flash to the front, ready for the next photograph. When flash is not needed, the flash cube is simply pulled out. (See p 59).



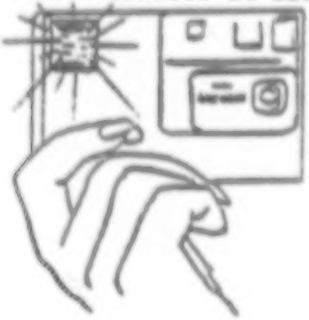
- "Flipflash"

  Some cameras use a "Flipflash" which contains more flashes than a flash cube.



- Built-in flash

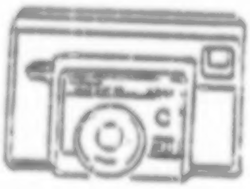
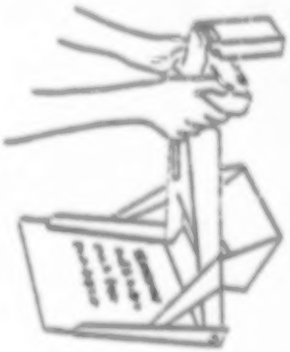
  Certain cameras have an electronic flash, built into the camera so that the use of a flash is available at all times.



(2) The camera set (Visual maker)

Slides for use in the classroom can easily be taken by the teacher. All schools possess a camera set (visual maker) which is simple to use but can produce slides of good quality.

Possibilities for the taking of slides

(a) Photographing the object itself		(b) Copying pictures
Source	The actual object or event	A picture or sketch from a book or magazine
Place	Any place where the object is available or where events occur	In the work room removed from the actual object or events
Accessories	Camera set 	Copy stand 

Features of the camera set (visual maker)

(a) It is most suitable for use by persons with limited experience of photography.

(b) It is fully automatic. No lens aperture or shutter speed adjustments are needed.

(c) Close-up photography is possible with the copying frames which form part of the set.

(d) Close-up photography is limited to the two distances offered by the copying frames.

(e) Copying is possible when any of the two frames are used.

(f) Uses a 126 film cassette.

(g) No interchange of lenses is possible.

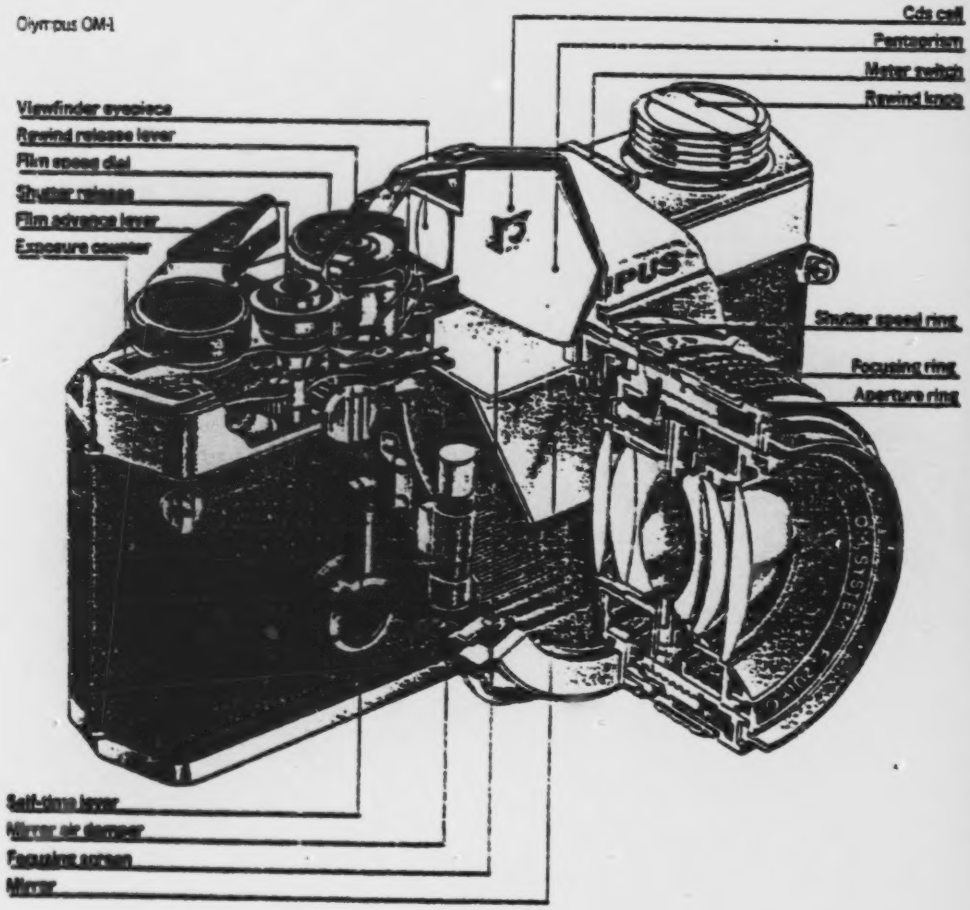
(h) Produces a square slide.

Use of the camera set.

A slide-sound programme on the use of the camera set is available from the Transvaal Education Media Service.

5.1.4 The 35 mm camera

The 35 mm camera is very popular and is available in a variety of makes and models. Because it is adjustable it does not have the limitations of the cheaper instamatic-type camera. Adjustable cameras can take photographs in poor light and can achieve a variety of photographic effects.

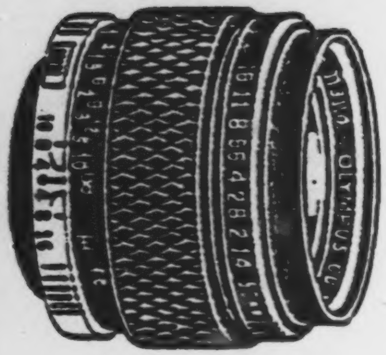

Olympus OM-1
Cds cell
Pentaprism
Meter switch
Rewind knob
Viewfinder eyepiece
Rewind release lever
Film speed dial
Shutter release
Film advance lever
Exposure counter
Shutter speed ring
Focusing ring
Aperture ring
Self-timer lever
Mirror air damper
Focusing screen
Mirror

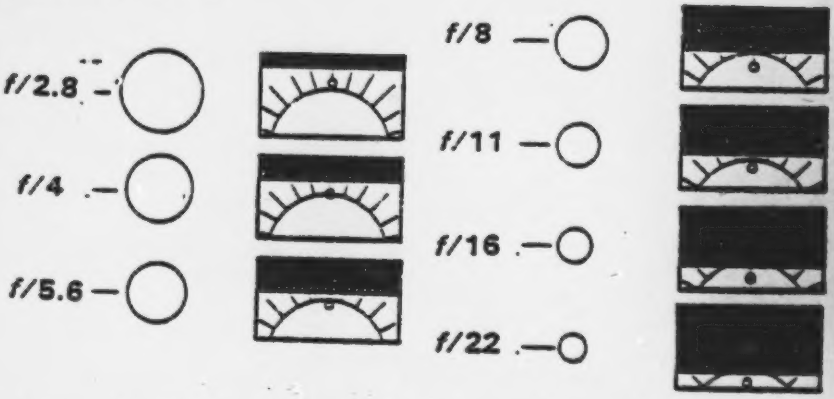
Although the 35 mm camera appears complicated to the novice, it consists of the same basic components. The only difference is that the aperture, shutter speed, focus and film sensitivity are adjustable and lenses are interchangeable.

(1) Aperture

Can be adjusted from small, (a small quantity of light allowed) to relatively large - (more light gets through).

On a ring, mounted on the lens housing the numbers 2,8 4, 8, 11, 16 and 22 appear, each indicating a specific size aperture.



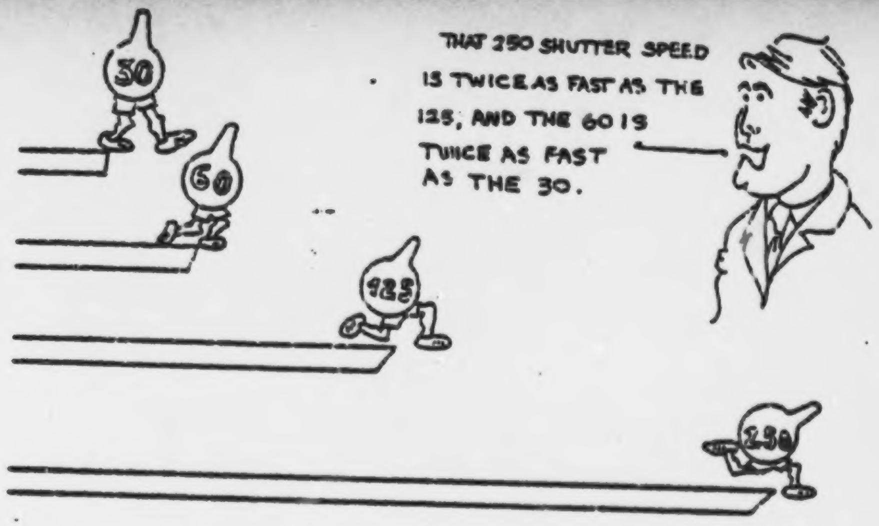


A small aperture is indicated by a larger number, eg. 16 while a larger aperture is indicated by a smaller number, eg. 2,8. Each number on the ring (commonly called F-stop) will let through double the amount of light than the next larger number. Thus an aperture of f8 will allow double the amount of light to reach the film than f11, which in turn will transmit double the amount of light than f16.

The aperture also performs an important function in determining depth of field. Depth of field is the distance that an object can be nearer or farther than the actual distance focused on, and still give a sharp image in the photograph.

(2) The shutter

The shutter determines the duration of film exposure and with the adjustable 35 mm camera it is possible to vary the length of time during which the shutter is open, eg. times of 1/1000th of a second to longer than 1 second. The shutter speed of each slower position is double the time of the previous position, or, put differently, each faster position will allow half the time of the previous position. The shutter speed affects the way in which movement is depicted on the film. (See p 63).


30
60
125
250
THAT 250 SHUTTER SPEED IS TWICE AS FAST AS THE 125, AND THE 60 IS TWICE AS FAST AS THE 30.

(3) The balance between aperture and shutter speed

The correct exposure of a specific film depends on the size of the aperture as well as the shutter speed. The aperture and shutter speed in conjunction determine optimum exposure.

To obtain the correct exposure during overcast or poor lighting conditions a larger aperture or slower shutter speed, or both, will be required. On bright sunny days the aperture will be smaller and the shutter speed faster or even both.

If the amount of light is kept constant, different combinations of shutter speed and aperture can expose a photograph correctly. Let us assume, for instance, that f5,6 at a shutter speed of 1/60 seconds is the correct exposure for a photograph. If we should halve the aperture size of f5,6 it would become f8 and if we should double the shutter time, i.e. 1/30 seconds the photo would still be correctly exposed. Thus a setting of f8 at 1/30 seconds gives the same exposure as f5,6 at 1/60 seconds.

The following table is a further example of equal exposures:

^{1}/500 at f4 equals

^{1}/250 at f5,6 equals

^{1}/125 at f8 equals

^{1}/60 at f11 equals

^{1}/30 at f16

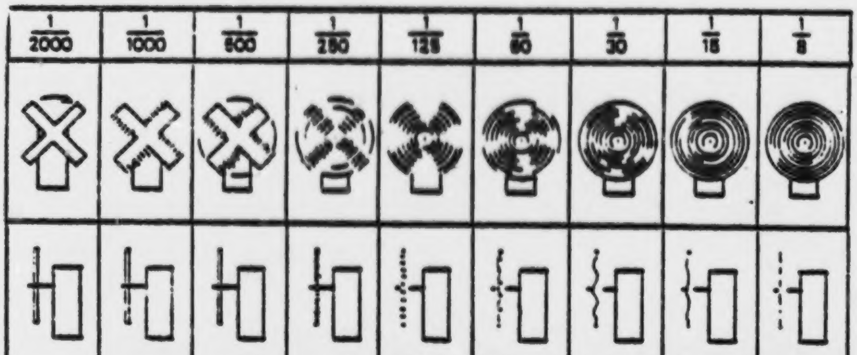
The exposure will remain constant at all the above settings and the picture will not be too light or too dark. There will, however, be important differences in depth of field between the first and last settings.

On a picture taken with a large aperture, e.g. f4, at 1/500 seconds, there will not be much depth of field. This means that the object will be sharply in focus while the foreground and background will be out of focus. If you are deliberately trying to achieve this effect, an adjustable camera is essential.

At a setting of f16 at 1/30 seconds, more depth of field will be obtained and the object as well as the foreground and background will be sharply in focus.

REMEMBER: A small aperture always gives you more depth of field and a large aperture gives you less.

(4) Moving objects



When a fast moving image is photographed with a slow shutter speed, eg. 1/60 seconds at f5,6 the outlines of the object will be blurred in the direction of the movement. To ensure a sharp image of a moving object (i.e. to 'freeze'it), a fast shutter speed but with the same exposure must be used, eg. 1/250 at f2,8 seconds.

(5) Automatic adjustment

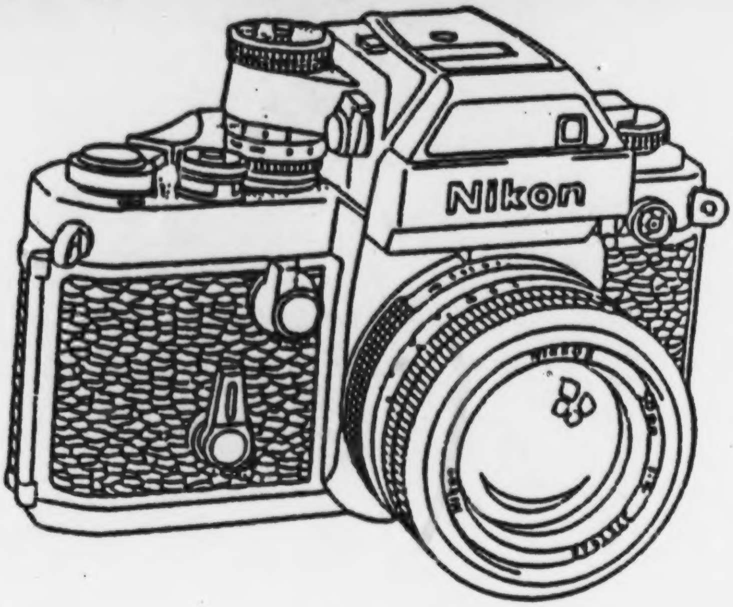
Some 35 mm cameras are equipped with built-in light meters and automatic controls which facilitate the task of the amateur photographer considerably.

With the semi-automatic camera, the shutter speed is selected by the photographer, while the camera sets the correct aperture automatically. Other cameras adapt the shutter speed to an aperture selected by the photographer. Cameras with both capabilities are also available.

The only condition for correct exposure is that the ASA adjustment on the camera should correspond with the ASA number on the film. Whenever a new film is loaded into the camera, this adjustment should be checked.

(6) Lenses

The smallest number (largest aperture) for a specific lens is known as the lens speed. This is usually indicated on the front of the lens. A lens with a small number (i.e. large aperture) is called a fast lens. The smaller the number, the faster the lens. A fast lens transmits more light and enables a photographer to take photographs in poor light. Lens speed is important, especially to experienced photographers, when purchasing lenses. (See p 67).

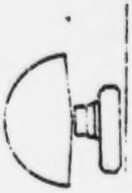


The following table of comparison serves to avoid confusion:

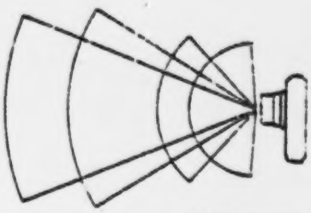
FILM SPEED = Sensitivity of film to light (ASA number)
SHUTTER SPEED = Time during which film is exposed to light
LENS SPEED = The largest possible aperture provided by a specific lens

Lenses are generally identified by their focal length which is indicated in millimetres on the front of the lens, together with the lens speed.

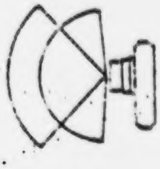
Lenses are available in a variety of focal lengths. The standard lens for a 35 mm camera usually has a focal length of more or less 50 mm. A 50 mm lens shows objects more or less the same size as they appear to the human eye. An 8 mm lens has a very wide field and is called a wide angle lens. It makes objects appear smaller and farther away. A 500 mm lens on the other hand has, like binoculars or a telescope, a very narrow field and is called a telephoto lens.



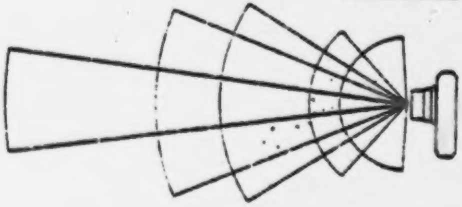
16mm fish-eye



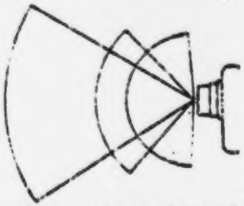
55mm normal



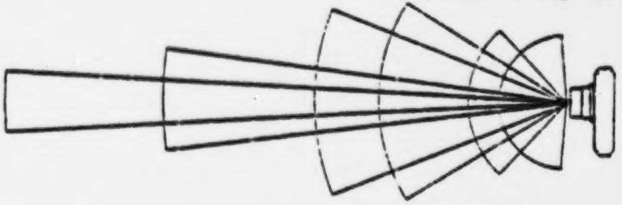
20mm wide-angl



180mm moderate long-focus



35mm moderate wide-angl



400mm extreme long-focus

The 35 mm camera has been included in the revised edition of the catalogue for the media centre and schools that are interested should budget for it.

5.2 Graphics

5.2.1 Introduction

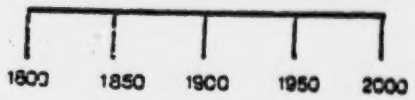
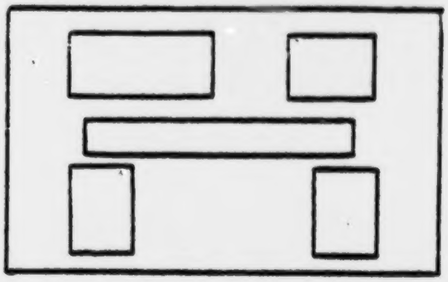
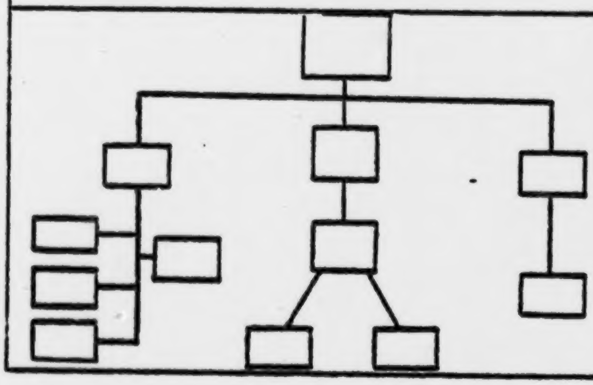
Graphics in slide series and slide-sound programmes make an important contribution towards enhancing the visual material presented to the viewer. This includes diagrams, graphs and lettering used, e.g. to

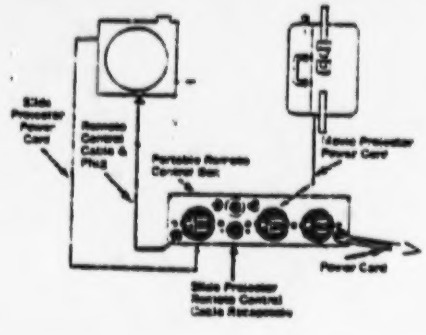
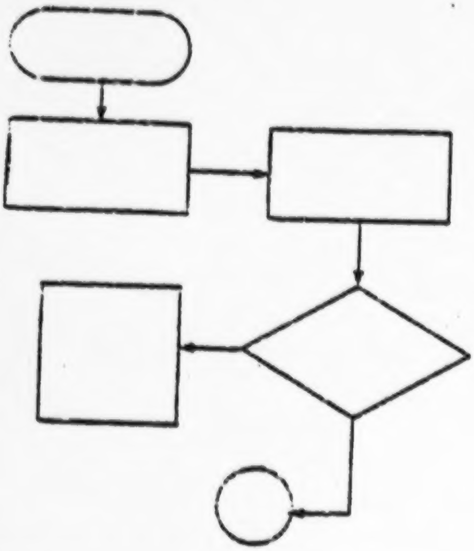
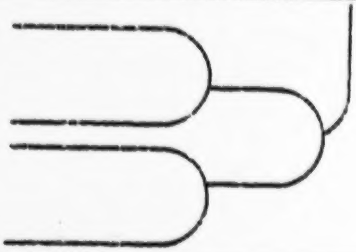
- summarise information
- present facts and events
- indicate relationships
- draw and direct attention
- analyse and compare

The teacher should, when planning a slide-sound programme, be aware of the function of graphics in the effective transmission of visual information and what type of graphics are best suited for specific purposes.

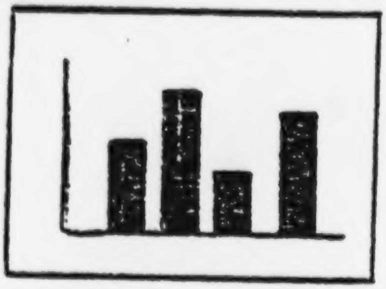
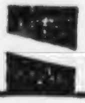
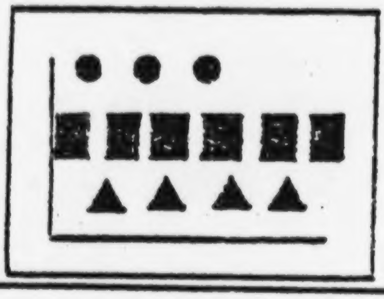
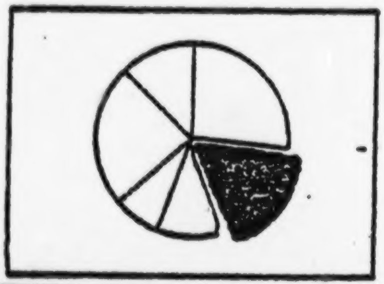
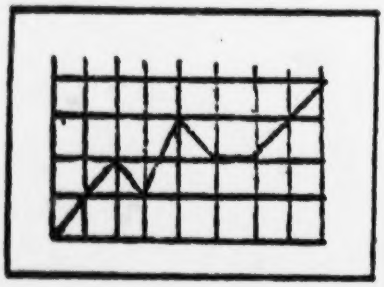
5.2.2 Examples of graphics for slide-sound programmes

DIAGRAMS

	A linear presentation to place events in chronological order
	Grouping of information to place information in specific groups. (e.g. The periodic table of elements)
	Organising information to indicate a hierarchy

 Slide Projector Power Cord Remote Control Cable & Plug Portable Remote Control Box Movie Projector Power Cord Power Cord Slide Projector Remote Control Cable Receptacle	Presentation through diagrams to clarify complicated subjects
	Flow charts to represen the flow of information or the line of development of a process
	Branching is used to indicate the source or the place of subdivisions

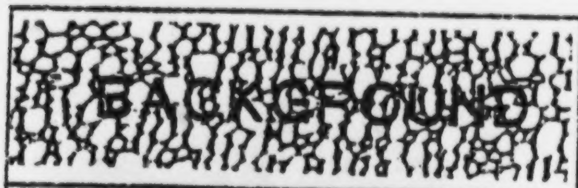
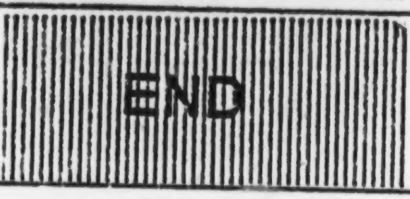
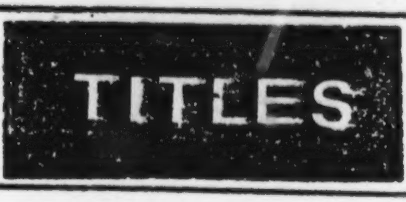
GRAPHS

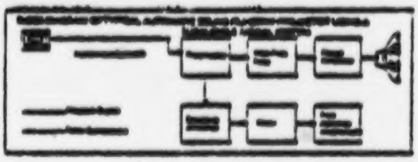
BAR GRAPHS: 	• Effective for comparing quantities • Easiest to read • Best to use limited number of bars (5-8) • Color can be effectively used • Avoid divided  bars
PICTORIAL GRAPHS: 	• Used to present same kind of data as bar graph • Adds the visualization of quantities as concepts • More eye-catching • Sometimes confusing to children, who must recognize the symbol
CIRCLE (PIE) GRAPHS: 	• Relates parts to whole • Most effective of all for showing percentage of whole • Parts must add up to 100 percent
LINE GRAPHS: 	• Relate relationship between two variables • Relate quantities to linear sequence such as time • Good for showing trends • Most precise of all graphs

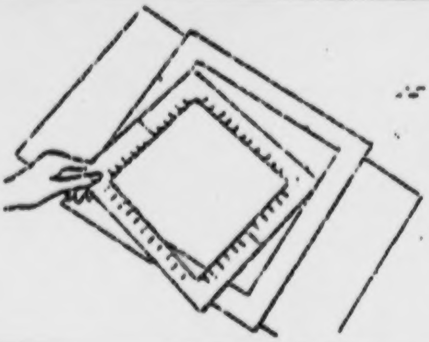
(3) Lettering

Slides containing only words are used at the beginning and end of a programme as subtitles, summaries and explanations. Guard against too many of these slides as it may detract from the visual impact of the programme.

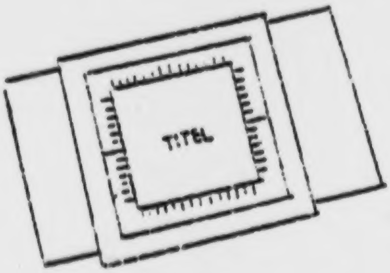
(a) Practical hints for lettering

	A background motif or texture can affect the legibility of your lettering.
	A background pattern with prominent vertical lines makes lettering illegible.
Good balance	Lettering must be arranged so that a good balance is obtained
	Light letters against a dark background is easier than dark letters against a light background.
Days of the week	Information on a slide can be progressively supplemented.
Days of the week Monday	Addition to a previous slide.

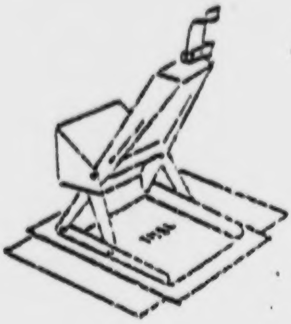
Days of the week Monday Tuesday	Further addition
SIZE	Lettering should always be large enough to be legible to the whole audience
Decorative Lettering	Decorative lettering is difficult to read
ILLUSTRATION × Illustration ✓	Lower case lettering is easier to read than upper case
FEW WORDS	Words on a slide should be kept to a minimum
	Do not rely on pictures with captions if the captions are too small to read



Title slides can be made from single letters by using two frames that fit together. The outside frame frames the area to be photographed while the inside frame provides space for the title.



The markings on the inside frame facilitates the placing of letters as does the ruler against which the letters are placed.

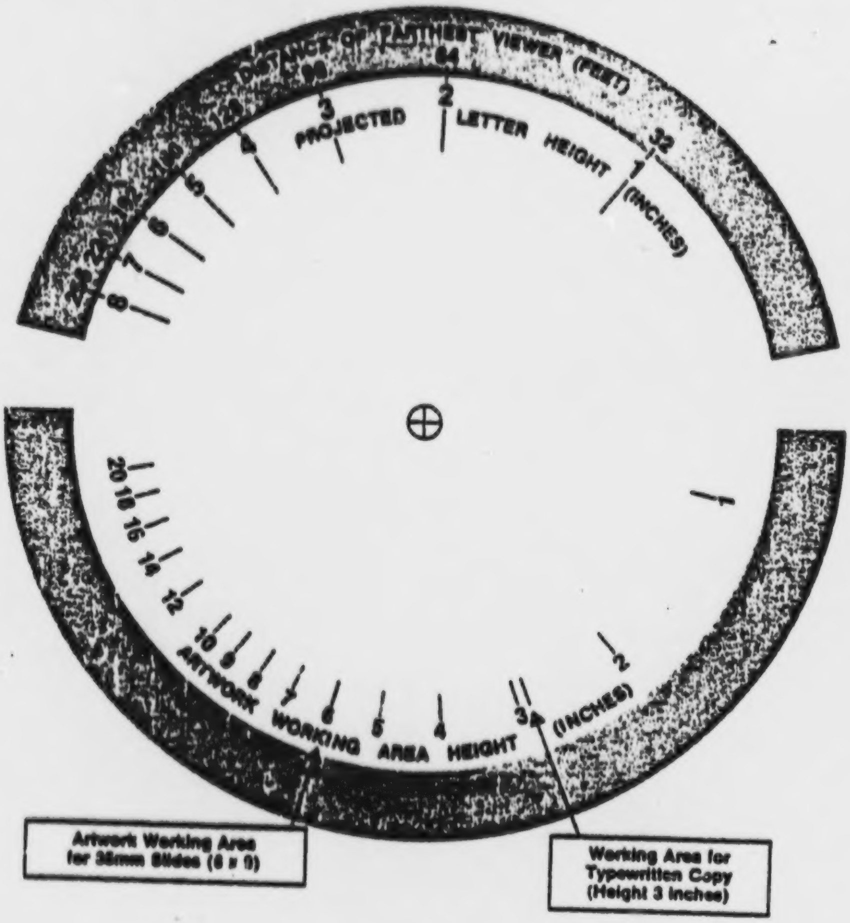


When a photograph is taken the inside frame is removed. The outside frame serves as a guide for placing the copy stand and falls outside the area to be photographed.

(b) Legibility computer

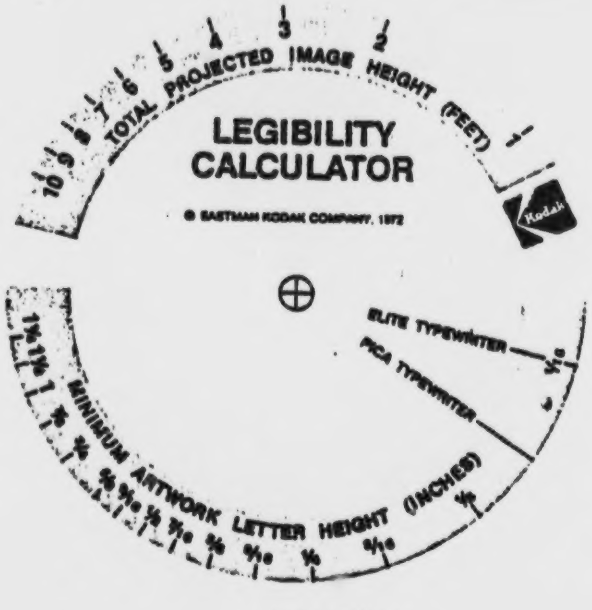
By following the instructions you can make your own legibility computer to determine what the size of lettering on slides should be.

USE THIS 'COMPUTER' TO DETERMINE LETTER SIZES FOR SLIDES

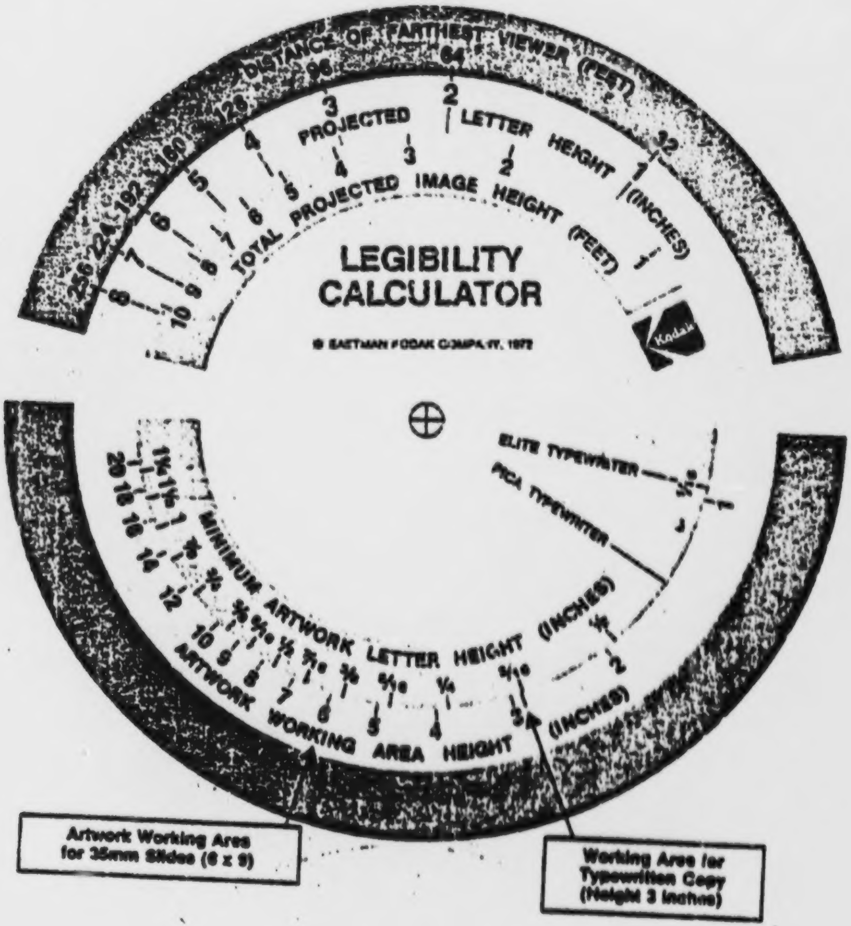

DISTANCE OF FARTHEST VIEWER (FEET)
96
64
32
PROJECTED LETTER HEIGHT (INCHES)
8
7
6
5
4
3
2
1
ARTWORK WORKING AREA HEIGHT (INCHES)
20
18
16
14
12
10
9
8
7
6
5
4
3
2
1

Artwork Working Area for 35mm Slides (6 x 9)

Working Area for Typewritten Copy (Height 3 inches)


TOTAL PROJECTED IMAGE HEIGHT (FEET)
10
9
8
7
6
5
4
3
2
1
LEGIBILITY CALCULATOR
© EASTMAN KODAK COMPANY, 1972
Kodak
ELITE TYPEWRITER
PICA TYPEWRITER
MINIMUM ARTWORK LETTER HEIGHT (INCHES)

The lower portion of the 'computer' indicates the letter size for a specific area on which lettering is required. The appropriate size letters for the viewer farthest away can be found in the top portion of the 'computer'.

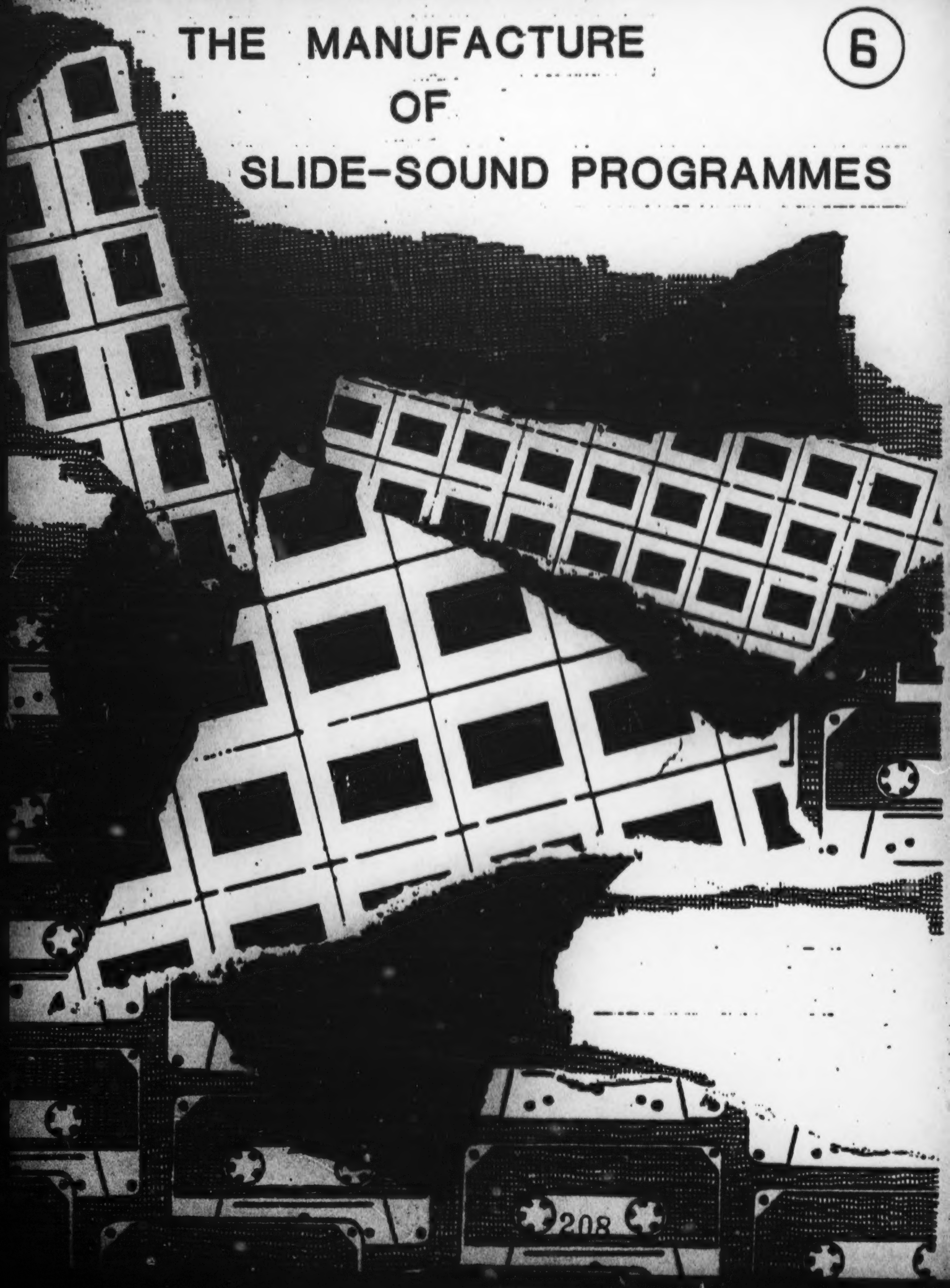

DISTANCE OF FARTHEST VIEWER (FEET)
256 224 192 160 128 96 64 32
PROJECTED LETTER HEIGHT (INCHES)
8 7 6 5 4 3 2 1
TOTAL PROJECTED IMAGE HEIGHT (FEET)
10 9 8 7 6 5 4 3 2 1
LEGIBILITY CALCULATOR
© EASTMAN KODAK COMPANY, 1972
Kodak
ELITE TYPEWRITER
PICA TYPEWRITER
MINIMUM ARTWORK LETTER HEIGHT (INCHES)
ARTWORK WORKING AREA HEIGHT (INCHES)
20 18 16 14 12 10 9 8 7 6 5 4 3 2

Artwork Working Area for 35mm Slides (6 x 9)

Working Area for Typewritten Copy (Height 3 inches)

THE MANUFACTURE OF SLIDE-SOUND PROGRAMMES

⑥



STEP 1

DETERMINE THE SUBJECT

1.1 What is the subject? ....

....

1.2 Which aspects are covered? ....

....

....

....

STEP 2

DETERMINE THE TARGET GROUP

2.1 Is the programme meant for adults or children? ....

....

2.2 What is the level of maturity of the target group?................

....

2.3 How much does the target group already know about this subject?

....

....

2.4 What is the attitude of the target group on this subject? .....

....

....

After an analysis the target group can be described as follows:

....

....

....

....

....

....

STEP 3

OBJECTIVE

What is your aim?

Consider carefully what you wish to achieve with the programme. Some programmes are meant merely to convey the actual information while others are designed to form or strengthen attitudes. A programme can be designed as introduction to a lesson or subject or as review at the end of the lesson.

It is essential that the objective is stated clearly because the atmosphere, composition and course of the programme will depend on it.

THERE CAN BE ONLY ONE OBJECTIVE FOR A PROGRAMME AND THE VISUAL AND AUDITORY COMPONENTS MUST BE AIMED SOLELY AT THE ACHIEVEMENT OF THAT OBJECTIVE.

Formulation of objective: After viewing the programme the audience should be able to or should be prepared to ....

....

....

....

....

STOP

It is imperative that the first three steps are completed before continuing with the planning.

The subject, target group and objective must be kept in mind throughout to ensure that the programme fulfils the specific needs. These are also the main criteria by which the programme will be evaluated on completion.

STEP 4

WHAT IS REQUIRED?

4.1 Hardware for production

Indicate in the columns below what is needed.

Hardware	Number required	Number Available	Alternative sources

4.2 Production material, e.g. film, material for graphics, cassettes, etc.

Indicate your requirements in the column below.

MATERIAL	QUANTITY	COST	AVAILABLE

4.3 Hardware for presenting the programme.

Indicate requirements in the column below.

HARDWARE	QUANTITY	AVAILABLE	ALTERNATIVES

4.4 Assistance required: subject content, technical skill and knowledge or general assistance.

Indicate the nature of the assistance required and who will assist.

ASSISTANCE REQUIRED	PERSON

STEP 5 COLLECTING AND SYSTEMATISING INFORMATION

5.1 Research and collecting information

In researching the subject a variety of sources in the media centre, libraries or museums can be consulted. Gather as much information as possible, even information that appears less useful, because it can often contain stimulating thoughts for the compilation of a programme.

5.2 Systematising information

INFORMATION CAN BE ARRANGED IN VARIOUS WAYS DEPENDING ON INDIVIDUAL PREFERENCES AND MODUS OPERANDI, AS WELL AS THE CONTENT AND THE NATURE OF THE PRESENTATION

Use Addendum A to arrange information and attach it to this page.

5.3 Planning visual images and graphic work

STOP At this stage ALL information concerning the subject ought to have been arranged while information that is not connected with the objective has been eliminated as far as possible.

Furthermore, it has been ascertained at this stage, that ALL information can be expressed in visual images. If in doubt you cannot proceed with the next step.

Consider the possibility of graphic depictions, flow charts, block diagrams, etc. as alternatives. Graphic depiction can be of great value and can provide a welcome break in the monotony of the presentation.

STEP 6 GROUPING AND EDITING ON A STORYBOARD

The systematised information available at this stage, contains the content of the programme which now requires further processing.

The visual images are now drawn on a separate card (approximately 100mm x 150mm). See sketch.

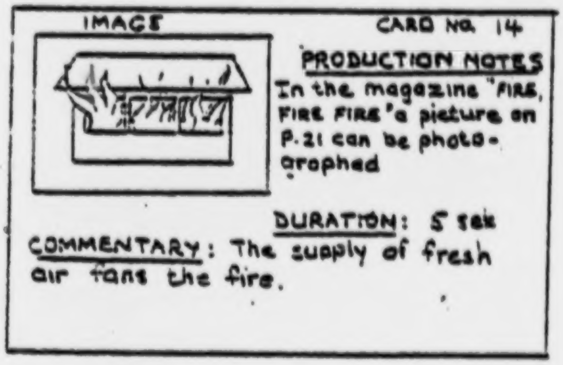
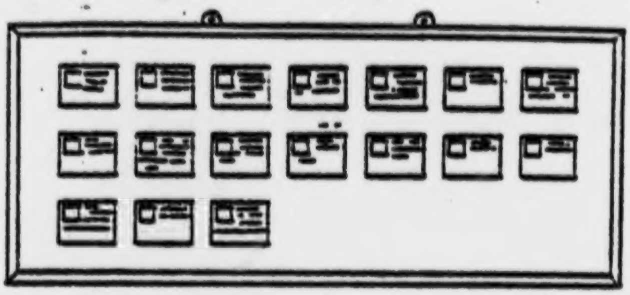


IMAGE
CARD NO. 14
PRODUCTION NOTES
In the magazine 'FIRE, FIRE FIRE' a picture on P.21 can be photographed
DURATION: 5 sek
COMMENTARY: The supply of fresh air fans the fire.

The drawings on the cards need not be works of art, but should contain the elements of the visual image you have in mind. A sketch is to be preferred to a description of the image because it will facilitate the planning of visual continuity. Also note the other information to be entered on the card, of which some will only be written in after the final editing of the programme.

The cards are arranged, in sequence on the storyboard, according to the systematising of information in step 5.



The development of the programme is critically analysed and the following points should be noted.

SECTIONS LEFT OUT	
SECTIONS TOO DETAILED	
CONTINUITY	
CLEAR, INTELLIGIBLE IMAGES	
SIMPLICITY	

REMEMBER: THE CONTENT AND COURSE OF THE PROGRAMME SHOULD BE AIMED AT THE TARGET GROUP. AT THE SAME TIME IT SHOULD ACHIEVE THE SPECIFIED OBJECTIVES

The advice of an outsider can be of great value because at this important stage of the planning, the final product is beginning to take shape.

STEP 7

THE FINAL SCRIPT

Because the storyboard is clumsy, the information can be transferred to a more manageable script.

The audio commentary must be finalised and pauses indicated in numerals. These pauses are necessary in some cases so that the required length of each slide remains unchanged.

N.B. THE DURATION OF THE COMMENTARY ACCOMPANYING EACH SLIDE SHOULD NOT EXCEED THE PERIOD OF TIME ALLOCATED TO THAT SLIDE.

IMAGE NO.............. DURATION .... PRODUCTION............................ NOTES	COMMENTARY:	PRODUCTION NOTES (SOUND)
IMAGE NO .... DURATION .... PRODUCTION .... NOTES	COMMENTARY:	PRODUCTION NOTES (SOUND)
IMAGE NO .... DURATION .... PRODUCTION .... NOTES	COMMENTARY:	PRODUCTION NOTES (SOUND)

STEP 8

PRODUCTION

Graphics are prepared and slides taken as specified in the script. Where doubt exists about the composition of an image it is wise to take additional pictures and select the most appropriate slide for the programme.

The audio commentary is recorded on cassette tape bearing in mind the required pauses. The tape is subsequently pulsed for synchronised presentation of the programme. Make a note of any problems that might arise and tick them off as they are solved.

	PROBLEMS	COMPLETED
GRAPHICS		
PHOTOGRAPHY		
TITLES AND SUBTITLES		
AUDIO COMMENTARY		

See also: Addendum B: Requirements and principles for planning and making slide-sound programmes and Addendum C: Summary of steps in making slide-sound programmes.

STEP 9

EVALUATION

9.1 The value and usefulness of a programme should be judged by certain criteria. The following criteria are suggested to evaluate a programme.

Is a slide-sound programme the correct medium for the subject? Has the objective been achieved? Could another medium have been used? ....
....
....

Was the content dealt with on a level commensurate with the ability of the target group? ....
....

Was the technical quality of the programme satisfactory? Were the visuals clear with good composition and lighting? Is the recorded sound clear, without noise or distortion? ....
....
....

Is the programme educationally sound? Is the continuity and balance satisfactory? ....
....
....

Does the programme stimulate pupil involvement and critical thought? ....
....

9.2 EVALUATION

9.2.1 Self manufactured programmes can be evaluated using the criteria below. These can also be used by media committees judging slide-sound programme competitions.

	COMMENTARIES	1	2	3	4	5
MEDIUM						
VISUAL QUALITIES Physical quality of material						
Simplicity						
Special techniques						
Continuity in the series						
Relevance of image						
Sharpness of image						
Graphic quality						
Photographic quality						
Visual effectiveness						
AUDITORY QUALITIES Physical quality of material						
Quality of sound. Distortion						
Sound effects						
Sound mixing						
Tempo and continuity						
Voice quality and accent						
Volume						
Auditive effectiveness						
GENERAL Mechanical/electronic operation						
Mounting and packaging						
COMMENTARIES, MANUALS, WORK CARDS, ETC. Physical appearance						
Usefulness						
SUMMARY						

9.2.2 Explanation of terms

MEDIUM

VISUAL QUALITIES

Physical quality of material	eg. quality of slide frames
Simplicity.	Are images unnecessarily complicated?
Special techniques	e.g. Simplified graphics
Continuity in the series.	Is the theme continuous?
Relevancy of image.	Are image and commentary complementary?
Sharpness of image.	Is sharp definition adversely affected in any way?
Graphic quality.	Judging the originality of the graphics.
Photographic quality.	Judging photographer's skill.
Visual effectiveness.	Total impression of visual quality.

AUDITORY QUALITIES

Physical quality of material	e.g. durability of sound cassette.
Sound quality and distortion.	Clarity or distortion of sound.
Sound effects.	The use of appropriate sound effects.
Sound mixing.	The effectiveness with which the sound mixer has been used.
Tempo and continuity.	Too fast? Too slow? Too many interruptions?
Voice quality and accent.	A quiet but enthusiastic voice is to be preferred.
Volume.	Can the programme be presented at a satisfactory level?

GENERAL

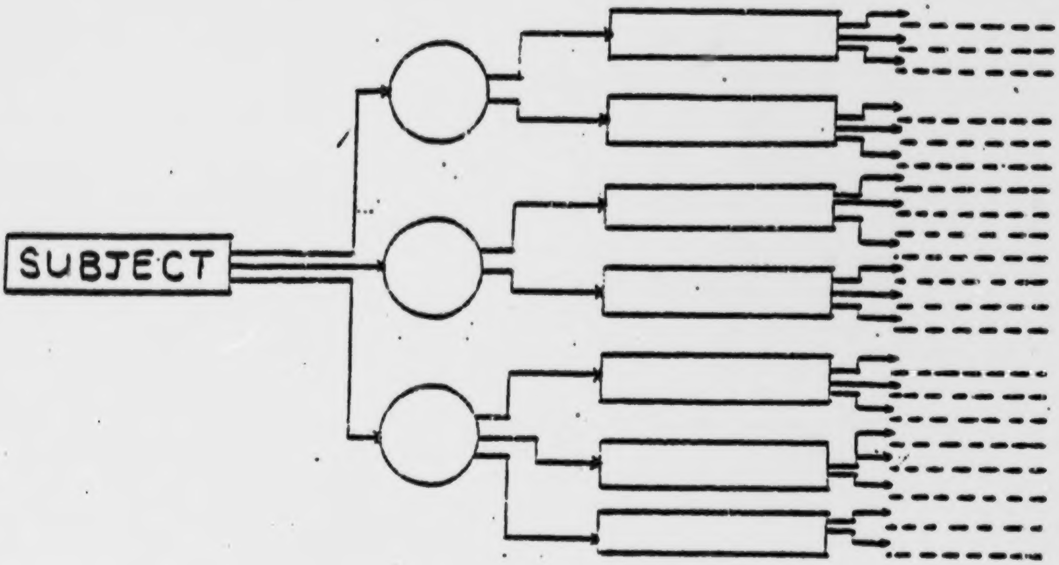
Mechanical/Electronic operation.	e.g. A synchronised programme without hitches.
Mounting and packaging.	Everything that will contribute to a longer programme life.

COMMENTARIES, MANUALS, WORK SHEETS, ETC.

Physical appearance.	Neatness, suitability for target group.
Usefulness.	Is it really functional?

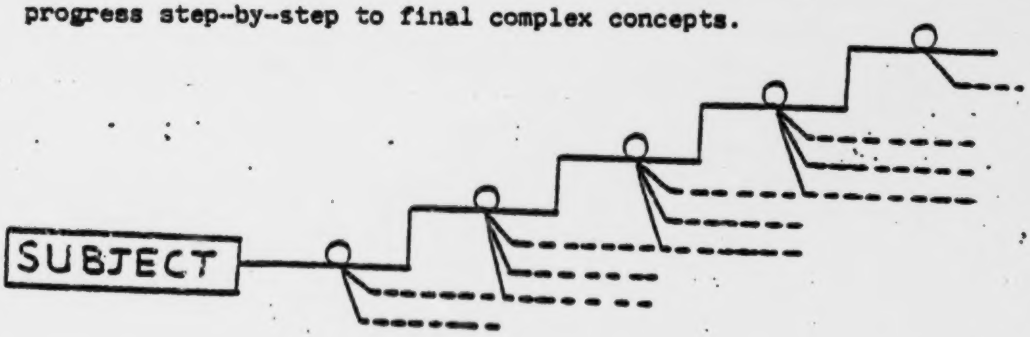
ADDENDUM A : SYSTEMATISING INFORMATION. SOME POSSIBILITIES.

1. Break a subject down into its various main components and write them down. Break the main components down into sub-components which in turn are sub-divided into factual information which is to be converted into visual images. Sometimes more than one image may be needed to represent a single thought.



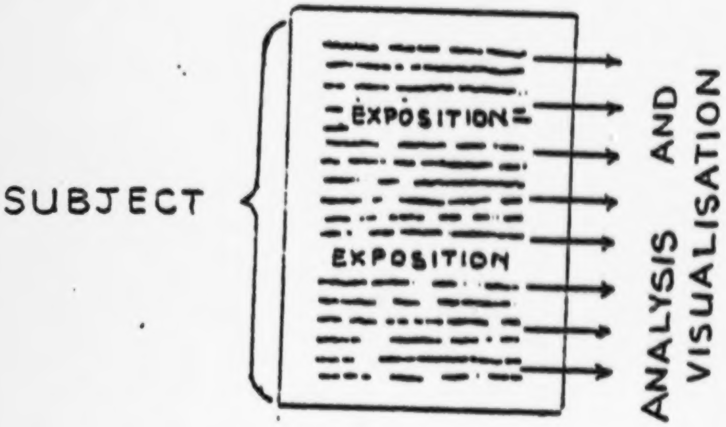
The number of main components, sub-components and factual analyses will vary from one topic to another, but it remains an ordered image of the whole subject from which a meaningful sequence of the programme can be synthesised. Sequences can be determined at will.

2. With some subjects it is necessary to start with simple ideas and then progress step-by-step to final complex concepts.



The systematising of information is grouped on each level for the whole of the programme and this fixed order cannot readily be altered. The content must be converted step-by-step into visual images in order to form a whole in the end.

3. The topic (or title) of the programme can be written down and the content can then be arranged in a logical sequence and presented in essay form. The written exposition can then be analysed sentence by sentence and the facts converted to visual images. It is important that the information be visualised so that the commentary in the final phase will not determine the function of conveying the information.



4. Even as early as the first stage of collecting and arranging information, it is useful to jot down ideas on cards, one idea per card. Use index cards, 100 mm x 150 mm or any manageable size card. As soon as the subject has been properly researched and written on idea cards, these cards are arranged on a planning board and organised to form a meaningful whole. The planning board can consist of any convenient surface on which cards are arranged. The storyboard mentioned in the next step can also be used as a planning board.

The ideas on the idea cards must also be analysed and reconstructed into visual images. Although there is only one idea per idea card, some ideas will require two or three or even more visual images to convey the information.

ADDENDUM B

REQUIREMENTS AND PRINCIPLES FOR THE PLANNING AND MAKING OF SLIDE-SOUND PROGRAMMES

- Thorough preparation and planning are the keys to success.

- In a slide-sound programme, information is conveyed primarily by means of visual images. Commentary therefore follows the visual images. The images are never made to fit the commentary.

- Each image depends on the quantity of information contained in it. It has a precise viewing time which must be determined in advance and written down so that the commentary accompanying that image will not exceed this time limit. If the duration of the commentary is shorter than that of the slide, a pause is left so that the slide is shown for the predetermined period of time. Any deviations from this critical period for which a slide is shown detracts from the programme.

- Each slide does not have to have a complete commentary accompanying it. Many images will require only very brief commentary or none at all.

- The commentery should never attempt to describe the image or convey information that the slide already does very effectively. The commentary should merely draw the attention of the viewer to a certain aspect or serve as a stimulus for closer observation.

- Visual images should be uncomplicated; more slides can be used to explain a complex idea.

- Slide-sound programmes should be short — preferably no longer than 10 - 15 minutes. The shorter the programme, the bigger the impact.

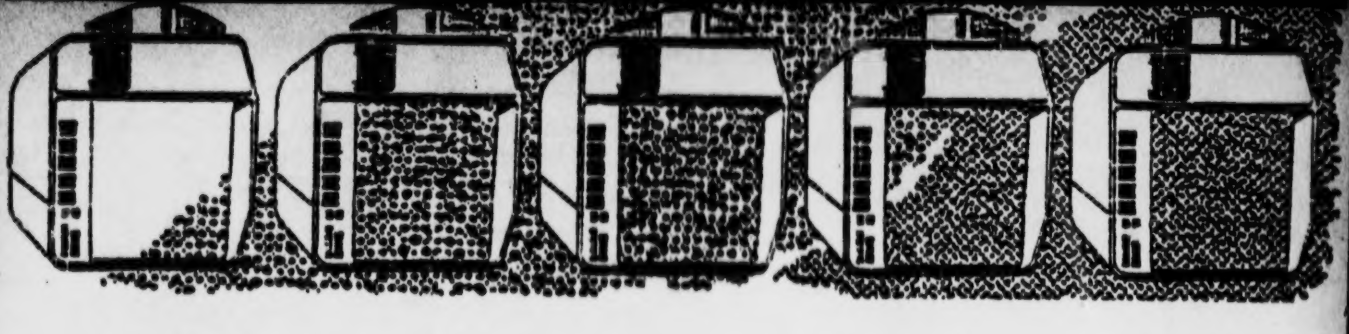
- 8 - 10 Seconds is a good average period per slide but the duration of each slide should be individually determined. The actual viewing period of a slide can vary from 3 seconds to 12 seconds.

- A first programme will probably suffer from lack of originality and imagination but experience will soon bring success.

ADDENDUM C

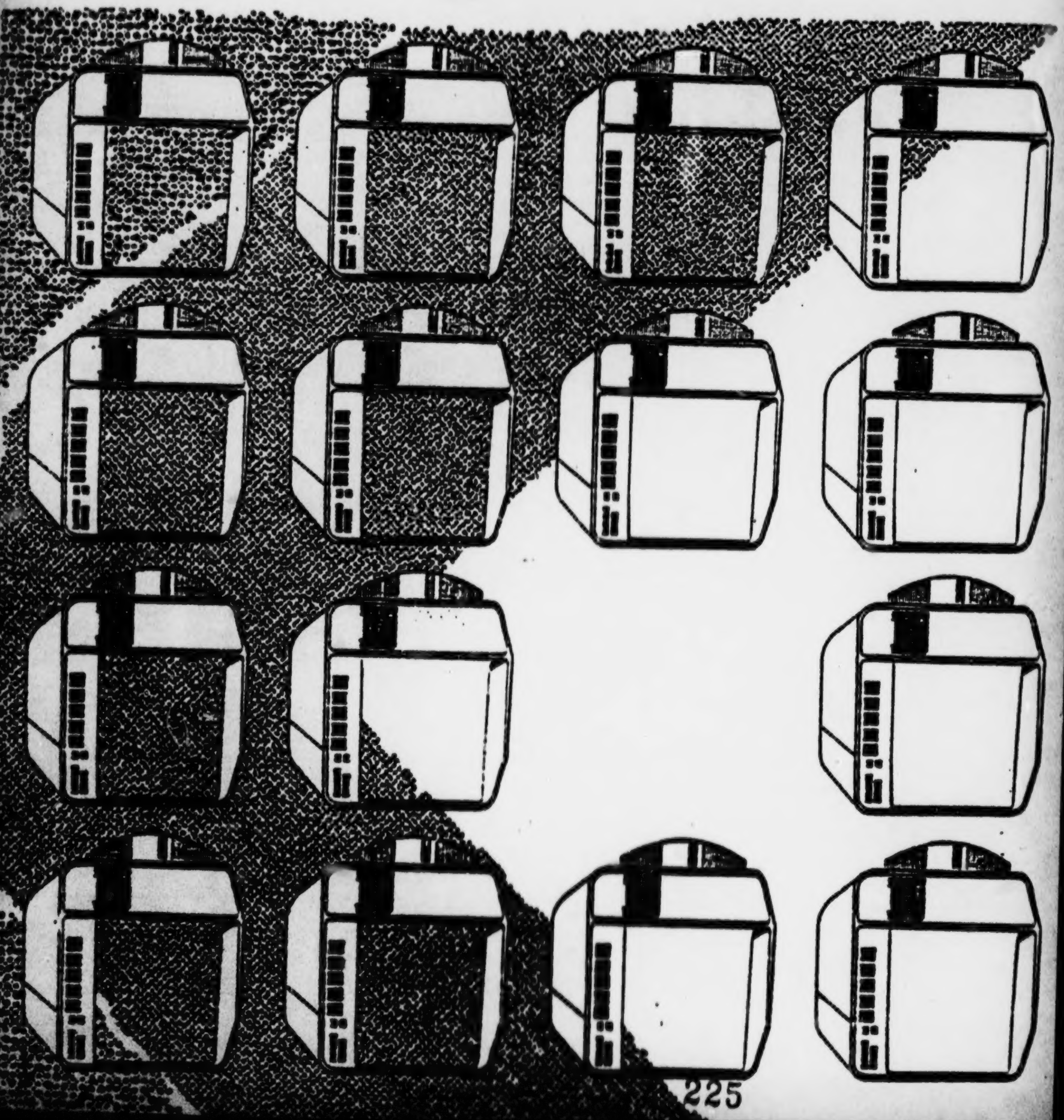
SUMMARY OF STEPS IN THE MANUFACTURE OF SLIDE-SOUND PROGRAMMES

PLANNING AND PREPARATION	THE SUBJECT :	Determine the subject Is a slide-sound programme the appropriate medium?
	DETERMINE TARGET GROUP :	What do they already know? Which age group? Homogeneous or heterogeneous?
	AIMS :	As introduction? As summary or synthesis? To teach a skill To shape attitudes
	PRACTICAL CONSIDERATIONS :	Available equipment Time available Cost factor
	SUBJECT RESEARCH :	In media centre? Useful sketches in books?
PROGRAMME PLANNING	ORDER INFORMATION :	Arrangement from simple to complicated? Arrangement in main groups subdivided? Arrangement in logical sequence?
	COMPILE STORYBOARD :	Visual ideas; assign duration Arrange according to objective Remove irrelevant slides, or insert others Be critical
	WRITE SCRIPT :	Write according to storyboard Be concise Indicate pauses and slide changes Ensure that visual image carries primary information
PRODUCTION	PREPARE GRAPHICS :	Work according to production notes Simplicity is important Use colour meaningfully
	TAKE PHOTOGRAPHS :	Know the camera Take additional pictures where doubt exists Simplicity is important
	RECORD SOUND :	Observe the pauses indicated in the script Ensure that your recording is free from extraneous noises Commentary must be supplementary to visual image
	PULSE FOR AUTOMATIC SYNCHRONISATION :	Pulses for slide changes must be placed with precision
FINISHING	TEST RUN :	Run through to check
	FINAL FINISH :	Number slides Mark sound cassettes Add directions for use
	EVALUATION :	Evaluate according to existing criteria Do alterations if necessary Integrage with teaching



CARE AND MAINTENANCE

⑥



7. CARE AND MAINTENANCE

7.1 General

The life of audio-visual media, hardware as well as software, will depend on the way it is handled, cared for and stored.

7.1.1 Handling

The following points should always be borne in mind and should become second nature:

(1) Software

- Do not let the fingers touch the film in slides, filmstrips or 16 mm film. Fingerprints are very easily left on these surfaces.
- Use software in dust-free environments as far as possible. Due to the static electricity that accumulates in software during use it attracts dust.
- Keep software dry.
- Do not leave it lying about. Keep it in the original packing or in the trays meant for it.
- Do not drop it on the floor.
- Load software into projectors with the utmost care.

(2) Hardware

- Avoid bumping or dropping it.
- Store hardware in a safe, solid place.
- Place electric cords in such a way that people will not trip over them.
- Withdraw damaged or out of order equipment from use immediately until it has been repaired.

- Switch hardware off after use and do not leave it unattended while switched on.

7.1.2 Care

Although regular maintenance is the task of a qualified technician there are some aspects that can be taken care of by the media teacher:

- The lamp reflector should be kept free of dust with a soft cloth.
- The screen of the slide-sound projector should be kept free of dust with a soft, damp cloth.
- Lenses should be kept free of dust and fingerprints. Take great care to avoid lenses being damaged or scratched.
- The greatest enemy of any piece of equipment is dust. Use a vacuum cleaner occasionally to blow dust out.
- Always make sure that the correct lamp is used when you have to replace one. An incorrect lamp can permanently damage equipment and endanger you, the user.
- When replacing a lamp always disconnect the machine from the power mains.
- Do not touch lamps with your hands or fingers for this shortens their life considerably.

7.1.3 Storage

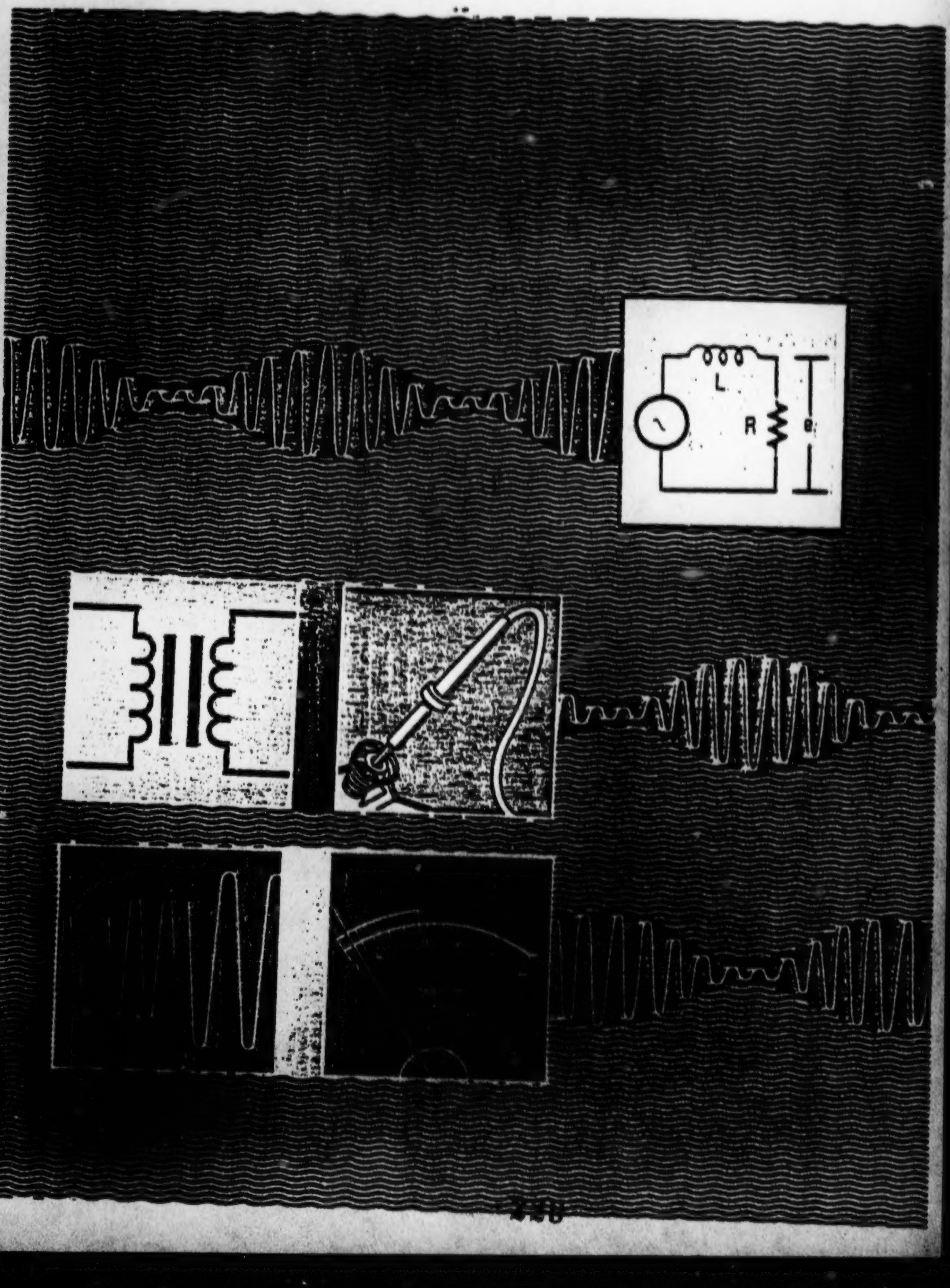
Hardware not in use should always be safely stored in a well-chosen place. The following points in this regard are important:

- The storage place should be dry, dust-free and not subject to extremes of temperature.
- Cover hardware with some form of textile covering.
- Guard against open or broken windows.

- Exterminate rats and mice to avoid damage to hardware and electrical cords.

BASIC ELECTRICITY

⑥



8. BASIC ELECTRICITY

8.1 Introduction

The users of audio-visual media, and especially the media teacher who is responsible for first line maintenance, often encounter difficulties like the following:

- The machine has suddenly stopped. What do I look for? Where can I find the fault, or is it a task for a qualified technician?
- A new machine, switched on for the first time, emits clouds of smoke and will not work. What have I done wrong?
- The piece of cord used to lengthen the cord on the machine heats up. The joint was made with the greatest of care. Is the situation dangerous? Is something wrong?
- A power plug or extension cord can be overloaded by connecting too many appliances and machines to it. When is it overloaded?
- On all electrical equipment a plaquette in the form of a metal plate or a sticker can be found containing electrical specifications. How important is it? What does it mean?

The aim of this section is to provide answers to questions like these and to provide teachers who are interested, with a basic technological literacy by explaining technical terms such as might be encountered when dealing with audio-visual hardware.

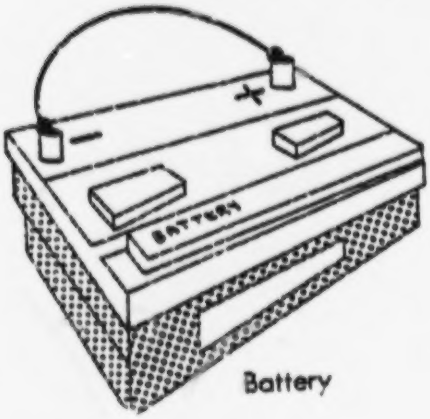
8.2 Properties of electricity

The large amount of energy available in the form of electricity is well known. Electricity is invisible and only its effects can be observed, hence the tendency to become either careless or to give it a wide berth. The most important properties of electricity will be discussed here.

8.2.1 Direct Current (DC)

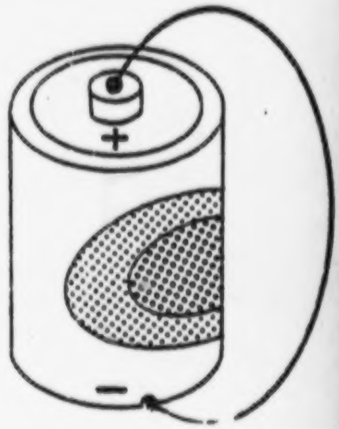
(1) Properties

- An electrical current running in only one direction in a conductor is called direct current.
- Because the current flows in only one direction, polarity can be determined (positive and negative poles).
- If these poles are connected to a conductor, current will flow in it in only one direction like water through a hose.



Battery

Cell



(2) Uses

- Electrical energy is available, in portable form, in cells and batteries of different shapes and sizes, for use in radios, tape recorders, cameras, etc.
- Batteries always deliver direct current. For this reason each piece of equipment is designed in such a way that its electronic system requires a specific battery or number of single cells.
- Portable hardware is battery powered to a large extent.
- For general home use, direct current is only used in certain types of adapted light bulbs and household appliances found on some farms.

8.2.2 Alternating current (AC)

(1) Properties

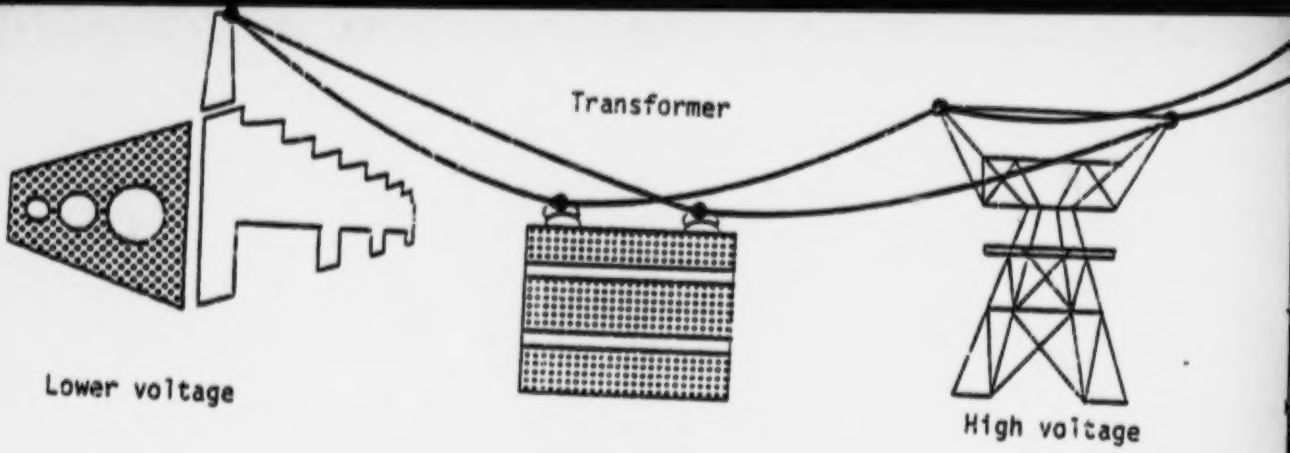
- Unlike direct current, alternating current does not flow in one direction only. It continuously reverses its direction of flow.
- The tempo at which these switches in directions occur, is called the frequency.
- The frequency of power supply in South Africa is 50 times per minute (5 Hz).
- In the U S A the frequency is generally 60 Hz.
- Because hardware is adapted to work at a certain frequency, this is usually indicated on the plaquette mentioned earlier.

(2) Uses

- With alternating current it is possible to use transformers which can increase or decrease electrical voltage.

  N.B. If a projector which uses 220 volt power is fitted with a 24 volt lamp it would require a transformer to reduce the power from 220 volts to 24 volts. For this reason the projector could only be operated on alternating current.

- In many industries where heavy machinery is used, higher voltages than 220 are required. This can be provided by using transformers to supply the required voltage.



- Power supply to industries is specialised and usually 3 phase.

8.2.3 Current

Certain electrical appliances consume more electricity than others; compare the electric stove with a light bulb.

(1) Internal electrical resistance

- The difference in power consumption between electrical appliances is related to the internal electrical resistance in the appliance. An appliance with low resistance will offer less resistance against the current, causing more current to flow while the opposite is true of an appliance with high resistance.
- Current is measured in ampére (AMP).
- The well known formula $I = \frac{E}{R}$ indicates the relationship between current, voltage and resistance. Where I is current, E is voltage and R is resistance.
- From this formula it is easy to deduce that when the voltage E is kept constant, the current I (AMP) will be increased as resistance R, is reduced.

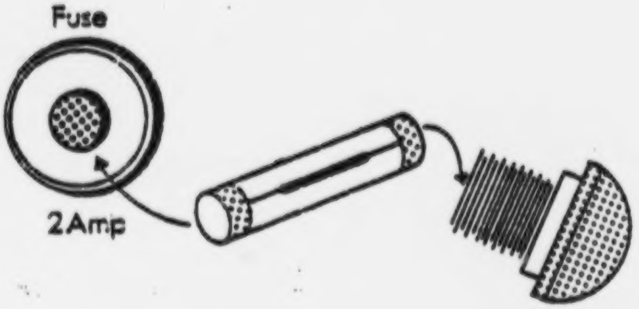
or: the current will decrease as the resistance is increased.

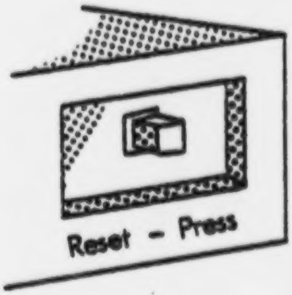
- The more power an appliance uses, the greater the flow of current it requires. Such an appliance will be designed with a lower internal resistance.

(2) Shorts and circuit breakers

When a short circuit develops in an apparatus due to some defect, the current will follow the path of least resistance. The current will be very strong because of the low resistance encountered and that part of the circuit having to carry this strong current for which it was not designed, will overheat, burn or even explode, possibly damaging the machine beyond repair.

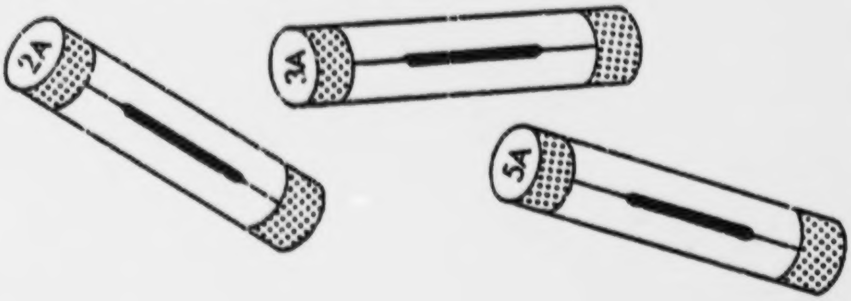
To guard against such severe consequences circuit breakers are installed in the equipment in the form of fuses or trip switches.





These safety devices are built into the main circuit of the machine so that any increase in current will cause a thin wire to melt and break the circuit before damage can be caused to the machine. Trip switches are built in such a way that they will break the circuit at a predetermined increase of current.

Because safety fuses are designed for different currents it is important to use the correct fuse when replacing a burnt out one. The maximum current a fuse is designed for is usually indicated on the fuse, and on the housing which contains the fuse in a machine.



When a fuse repeatedly blows or a trip switch keeps tripping, a technician should be consulted.

N.B.
- It would be most unwise to replace a blown fuse with one of a higher ratio, while on the other hand, one with a lower ratio would not be able to carry the load.
- Never, under any circumstances, wrap a fuse in tinfoil and re-use it.

8.2.4 Voltage

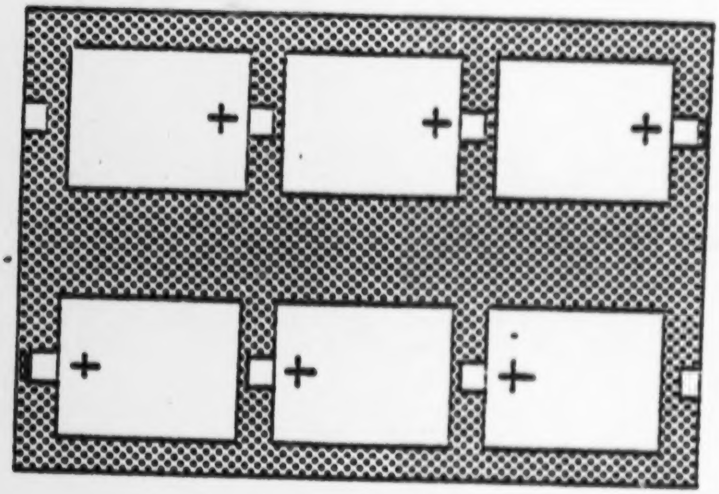
Electrical potential is measured in volts and can be available in anything from fractions of a volt to thousands of volts. Domestic power supply is 220 volts while small electronic equipment such as radios, cassette recorders etc. usually use 6, 9 or 12 volts. The voltage remains constant, no matter whether the power consumption of the appliance is high or low.

(1) Use of batteries

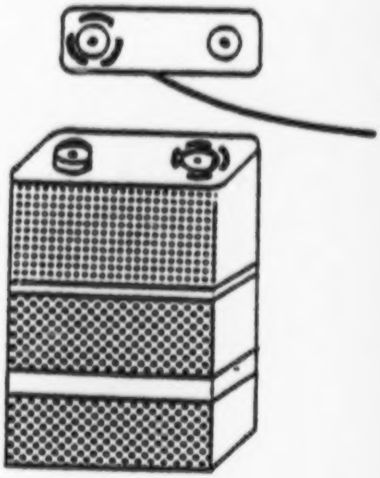
Correct voltage is also important for equipment designed to work on batteries. Mistakes are, however, seldom made because appliances using batteries are built in such a way that only the correct battery or number of batteries will fit into it.

Polarity (positive and negative) should be borne in mind because batteries supply direct current. Batteries installed the wrong way around will result in the appliance not working. Permanent damage can be caused if cheap equipment is used.

The compartment housing the batteries is usually clearly marked, indicating polarity and the way the batteries should fit.



Housing with polarity indicated



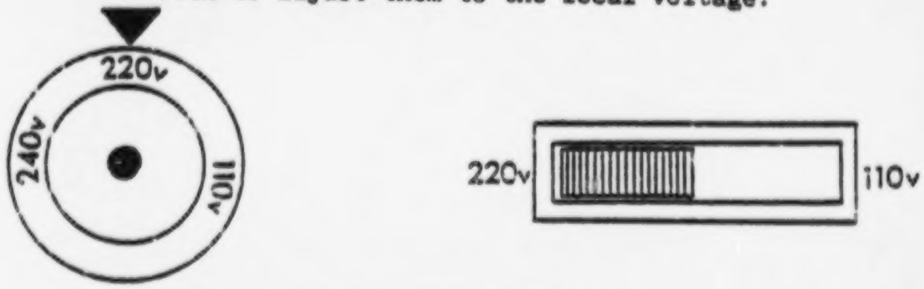
Terminals for battery

The contacts on batteries are usually designed in such a way that it is impossible to connect them incorrectly.

(2) Domestic electricity supply

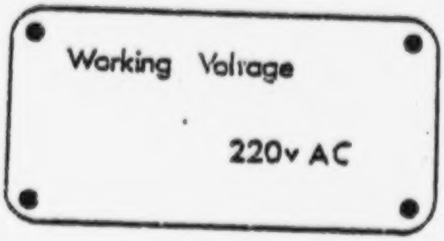
Domestic electricity differs in different parts of the world. In South Africa the general voltage is 220 volts, while in the U S it is 110 volts.

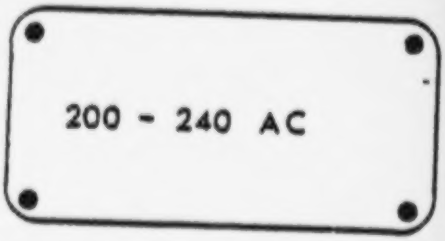
For this reason appliances are often equipped with a switch to adjust them to the local voltage.



Adjustments to adapt to supply voltage

It is important to select the correct voltage to prevent permanent damage to the appliance. In the case of some appliances no adjustments are possible but in such cases the required voltage is always displayed on the attached information plaquette.





8.2.5 Consumption

The amount of electricity consumed by an appliance can easily be determined by consulting the information plaquette. Consumption is indicated in watt (AV), which is the product of current and voltage

$$W = I \times E$$

From the formula it is clear that when the voltage (E) remains constant, but current (I) is increased, consumption will also increase, or, if current is reduced, consumption will decrease.

Electric heaters which usually have a consumption of 2000 watt require a much thicker electric cord than a small cassette tape recorder with a 30 - 50 watt consuption.

8.2.6 Extension cords

It is often necessary to lengthen the electric cord of an appliance by using a separate extension cord. It is important to make sure that the extension cord will be able to carry the current safely. The golden rule in this instance would be to ensure that extension cords never have copper cores which are thinner, or the insulation weaker, than that of the cord on the appliance. Because the "usual" audio-visual hardware encountered in schools have a relatively low electricity consumption this problem is unlikely to crop up. Be very careful however, when using high power consumers such as strong lighting systems, heaters etc. Never use the cord that connects them to the power mains while it is coiled up. Overheating of an extension cord easily occurs on the spool, causing metal cores and insulation to melt.

Items which are high electricity consumers must have a heavier extension cord or its own cord must be extended by joining an additional length to it. If it is too thin, overheating may occur.

8.2.7 Earthing connection

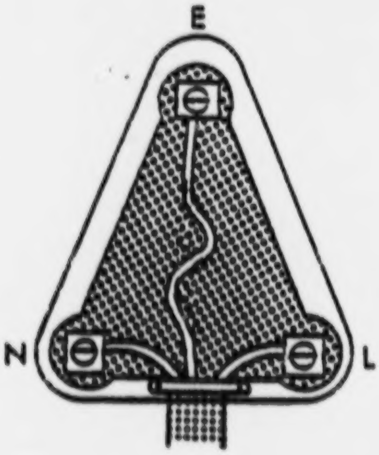
Most appliances are supplied with a cord which has three cores. The colour of the insulation on each core indicates its function. The brown and blue wires are conductors and they carry the current, while the green with yellow wire is the earth connection which is connected to the metal frame or chassis of the appliance. Its function is to protect you from electrical shock. If the metal parts of an appliance becomes "live" due to a short circuit the earth connection will conduct the electricity to earth potential which is neutral, thereby reducing the danger of electrical shock.

Modern buildings are equipped with earth leakage systems which continually monitor earth connections. At the least sign of a flow of current it will interrupt the power supply. Some appliances are "doubly insulated" and because the manufacturers claim that they are sufficiently insulated they are not supplied with earthing connections.

8.2.8 Power Plugs

The letters E, L and N next to the contact points on a plug help you to identify them and connect the wires correctly.

COLOUR CODE	TERMINAL	SYMBOL
GREEN AND YELLOW	EARTH	E
BROWN	LIVE	L
BLUE	NEUTRAL	N



Note that the green and yellow wire (earth) should form an "S" in the plug to ensure that if the wires are pulled from the plug by force, the earthing connection will only snap after the other two wires. The importance of fastening the wires in the plug properly cannot be over-emphasised.

9. ACQUISITION AND ORGANISATION

9.1 SOFTWARE

Software can be manufactured by the teacher, borrowed or purchased.

9.1.1 Making your own software.

The basic materials for making slide series and slide-sound programmes are P/C items in the catalogue for the media centre. It can be bought from the annual per capita allowance of the schools from firms who have contracts with the T E D. Schools are supplied with a list of such contractors. Items not included in any of these contracts may be bought at best advantage.

9.1.2 Borrowing software.

9.1.2.1 An extensive lending service to teachers is available at the Education Media Service. A comprehensive supply of programmes is available there.

9.1.2.2 16 mm Films for educational use in schools can be obtained from Audio-Visual Education Section of the Department of National Education in Pretoria. Schools should forward their order forms for films directly to this section and NOT to the Transvaal Education Media Service.

9.1.3 Purchasing software.

Software can be purchased from school funds or from the departmental allowance for the media centre. (See procedure for the Administration of the Media Centre).

9.1.4 Organising.

All programmes should be organised in the media centre.

9.2 HARDWARE

Hardware is supplied by the T E D if schools budget for it. It can also be bought from school funds. In case of doubt regarding hardware, please contact the Education Media Service. Hardware for use in your classroom is available from the media teacher of your school, in accordance with school policy.

BRONNELYS / SOURCE LIST

CARLTON, W H & CURL, D H 1972 Fundamentals of Teaching with Audiovisual Technology. 2nd ed. New York: Macmillan.

CONACHER, R C 1981 Media and the teaching of geography. RANDSE AFRIKAANSE UNIVERSITEIT : Instructa 80. Simposium vir Onderwystegnologie. Durban: Butterworth.

FREEMAN, M 1981 The 35mm Handbook. 2nd ed. New York: Ziff Davis Books.

HEDGECOE, J 1978 The Photographer's Handbook. 3rd ed. London: Ebury Press.

JONASSEN, D H 1982 Nonbook Media. Hamden, Connecticut: Library Professional Publications.

KODAK 1978 Audiovisual Projection. New York: Eastman Kodak.

KODAK 1978. How and Why of Photography. New York: Eastman Kodak.

KODAK 1977 Kodak Sourcebook - Kodak Ektagraphic Slide Projectors. New York: Eastman Kodak.

KODAK 1978 Legibility - Artwork to Screen. New York: Eastman Kodak.

KODAK 1978 Self-contained Projection Cabinets. New York: Eastman Kodak.

MACQUARIE UNIVERSITY Centre for Advancement of Teaching 1978 Video in Instruction. Sydney: Macquarie University. (Minicourse M20).

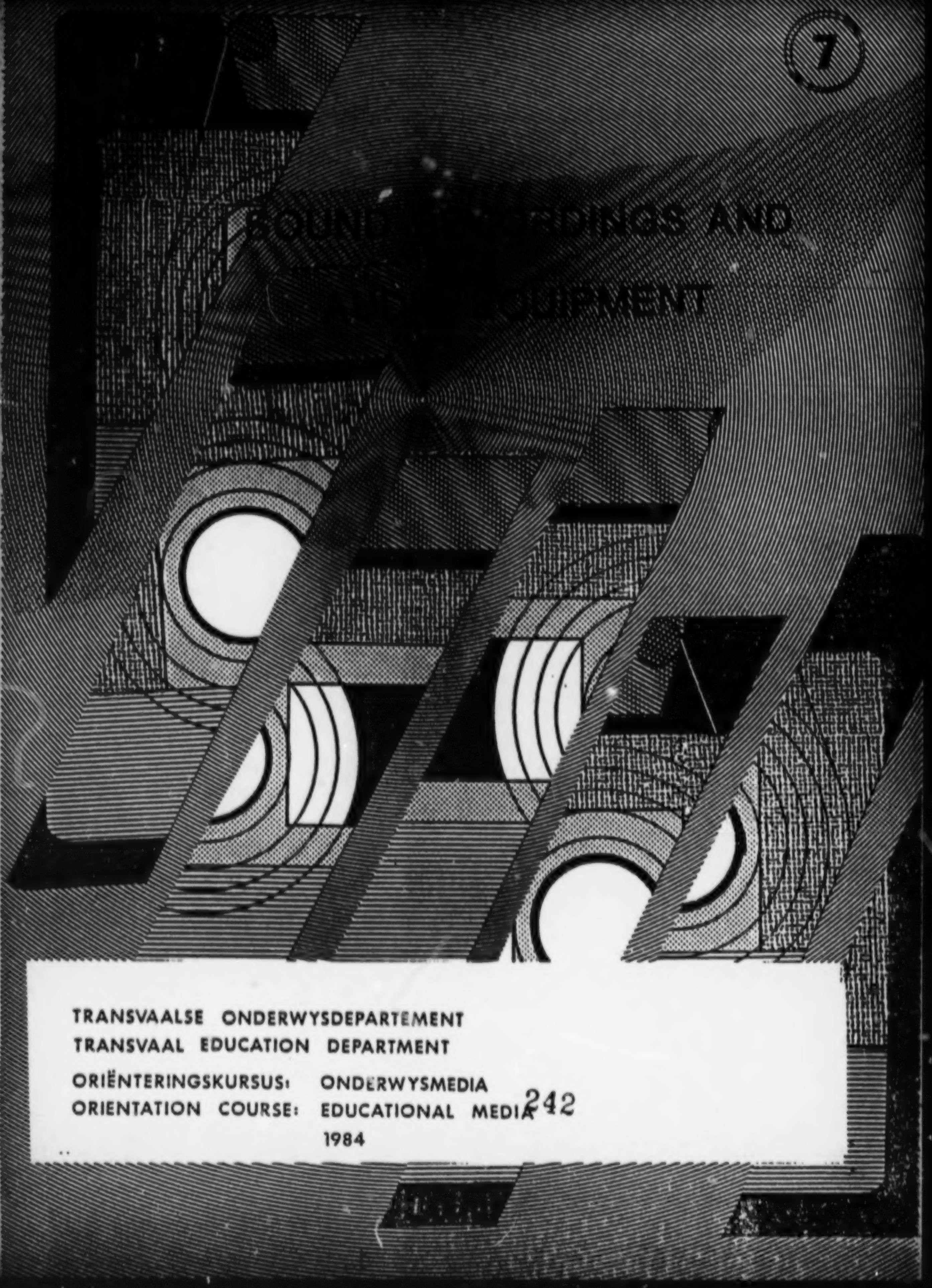
MORLEY, D 1982 Everyone's Book of Photography. London: Hamlyn.

NAVAC 1980 Audiovisual Handbook. London: Kogan Page.

SUNIER, J 1981 Slide/sound and Filmstrip Production. 1st ed. London: Focal Press.

TROWBRIDGE, N E 1974 The New Media Challenge. 1st ed. London: Macmillan.

TURNER, P M 1980 Handbook for School Media Personnel. 2nd ed. Colorado: Libraries Unlimited.



7

SOUND [illegible]DINGS AND [illegible]UIPMENT

TRANSVAALSE ONDERWYSDEPARTEMENT
TRANSVAAL EDUCATION DEPARTMENT
ORIËNTERINGSKURSUS: ONDERWYSMEDIA
ORIENTATION COURSE: EDUCATIONAL MEDIA 242
1984

SOUND RECORDINGS AND SOUND EQUIPMENT

Miss M S Cronje, Senior Media Specialis
Education Media Service

AIMS

AT THE END OF THIS LECTURE THE COURSE MEMBERS SHOULD BE ABLE TO GIVE GUIDANCE IN

1. the selection of sound recordings and their use in education;
2. the planning and making of sound recordings;
3. the use and maintenance of sound equipment;
4. the making of sound recordings at school; and
5. distinguishing between good and inferior technical and educational quality of programmes.

CONTENTS

1. Introduction
2. The educational use of sound recordings
   - 2.1 Listening skills
   - 2.2 Advantages and disadvantages
   - 2.3 Potential uses
   - 2.4 Media selection
3. Making sound recordings
   - 3.1 Requirements for sound recordings
   - 3.2 Planning
     - 3.2.1 Basic principles
     - 3.2.2 Practical hints
     - 3.2.3 Sound effects
4. Sound software
   - 4.1 The cassette tape recorder
     - 4.1.1 How does it work?
     - 4.1.2 Potential uses
     - 4.1.3 Maintenance
   - 4.2 The music centre
     - 4.2.1 How does it work?
     - 4.2.2 Uses in education
     - 4.2.3 Maintenance
   - 4.3 Junction box and earphones
   - 4.4 Software
     - 4.4.1 Audio cassettes
     - 4.4.2 Gramophone records
   - 4.5 Purchasing and organising
     - 4.5.1 Hardware
     - 4.5.2 Audio Cassette
     - 4.5.3 Gramophone records
5 Workshop

1. INTRODUCTION

1.1 Audio recordings for teaching and learning

Having by a process of media selection decided to use an audio presentation, it is useful to consider what various experts in this field, have to say about using this form of media.

Romiszowski (19 :152) seeming to stress the obvious, but nevertheless picking up the salient points, says,

> "... *they (audio presentations) may be used by a teacher to bring into the classroom sounds which are of significance to the learning process, for example music, language pronunciation, bird-calls or the noise of a rattling big-end bearing. The sound material is only part of the teacher's presentation. He introduces it for a specific purpose and demands specific reactions from the class ... The teacher decides to use a sound presentation on the basis of analysing this subject matter. This analysis pinpoints areas of the subject which rely on sound ...*

> "*Sound media may be used as an integral part of a teacher's presentation. Alternatively, they may be used to take over the verbal presentation altogether.*"

This could take the form of a pre-recording of the lesson or playing a recording. Romiszowski goes on to warn that,

> *The message source - lecturer or recording - emits information which is (we hope) received at the message destination - the audience. This is essentially a one-way traffic."*

In order to avoid this one-way traffic situation which can become most unsatisfactory, another group of researchers in Great Britain found that active participation by students was possible when this procedure was followed:

A combination of audiotape cassettes and booklets (booklets being a number of worksheets combined) are made available to the students. The tapes are borrowed from the media centre, but the booklets, being cheap to produce remain in the possession of the students. The tape introduces the procedure to be followed. The booklet likewise starts off by clearly defining the learning objectives of this particular lesson or set of lessons.

1.2 Sound is a versatile medium.

1.2.1 No one medium by itself is really successful in the educational setting. The teacher using some form of media has a far greater chance of giving a successful lesson when the medium is integrated into the topic. Sound is a versatile medium, but sound alone can be ineffective unless used correctly.

1.2.2 A sound programme, combined with worksheets, properly introduced can prove to be one of the cheapest, most effective ways of teaching, provided certain cardinal rules are followed. These will be dealt with during this lecture.

1.2.3 Students, it should be realised, learn at different rates and in different styles. Learning by using audio lessons does not mean that this method can replace the traditional methods of teaching, but it can make a significant contribution to the range of teaching methods. Students are able to set their own pace so that if something is not immediately understood, it is possible to rewind the tape to achieve instant revision.

1.2.4 The versatility of the medium has distinct advantages for the teacher as well. Repetition of certain lessons is for many teachers a necessary chore which leaves them jaded and often disillusioned. This is an obvious solution and has the added benefits that the teacher can revise, edit or re-organise what he wants to say so that a more professional presentation can result. It also would leave him free for individual help, checking progress, etc.

1.3 As a teacher considering whether to use an audio presentation, ask yourself the following questions:

(1) Do the pupils need to have their interest aroused in the topic? If so, are there any recordings which can do this?

(2) Are there any topics which involve sounds which the students should hear and which I cannot produce?

(3) Are there any topics which must be understood by various classes in exactly the same way and which I cover fairly frequently?

If the answer to any of these is, "Yes!", consider making/using an audio recording.

Learning Can Be Fun

AWAKEN ME AT END OF YOUR LECTURE. RECORDING YOUR EVERY WORD.

EDUCATIONAL TECHNOLOGY/March, 1978

2.1 LISTENING SKILL

ASSIGNMENT: Using the junction box and earphones, listen to cassette No. 1 and complete the work sheet.

Exercise 1: Sound Recognition

1		4	
2		5	
3		6	

Exercise 2: Identify speakers

	Age	Nationality/Region
1		
2		
3		
4		

Exercise 3: Learning listening skills

1		4	
2		5	
3		6	

2. EDUCATIONAL USE OF SOUND RECORDINGS

2.1 Advantages and disadvantages of sound recordings and audio cassettes

2.1.2 Advantages

(1) Cassette recorders are strong, simple to use and portable.

(2) Both recorders and cassettes are relatively cheap.

(3) The three functions, erasing, recording and playback are all simple to perform.

(4) Recordings can be erased and the tape re-used.

(5) Cassettes can be used repeatedly without impairing the volume or sound quality to any noticeable degree.

(6) Cassette recordings can be replayed with the same machine on which they were recorded immediately after recording.

(7) Cassette recorders enable teachers to be in more than one place at a time. Drill can be recorded, enabling the teacher to move among the pupils to assist with individual problems. This technique also enables the teacher to be part of the audience.

(8) Where learning activities have to be repeated and standardization of all aspects of the presentation is important, especially in the case of drill, repetition or instructions, cassette recordings are a great help.

(9) Cassette recordings encourage self-evaluation by enabling teachers and pupils to hear themselves as others would hear them.

(10) Cassette recordings are invaluable for evaluation whether by the teacher or by the pupil himself. The use of cassette recordings before and after a lesson enables a pupil to assess whether his speaking, reading, singing or playing has improved or not.

(11) Cassettes make it possible for sound recordings to be safely stored for any length of time.

(12) Cassette recorders facilitate the transfer of sound from one place to another because they are portable.

(13) The lesson content is recorded and can be repeated precisely.

(14) Individual use and quicker playback of individual efforts are possible.

(15) Weak or slow readers can receive instructions or information more easily from recordings before carrying out tasks.

(16) Sound and image can be combined in sound-slide programmes.

(17) Sound recordings can be made from a large number of sources.

(18) Sound recordings and work sheets are not place bound when used individually. Pupils can even use them at home.

2.1.3 Disadvantages

(1) Alterations require new recordings which can be time consuming.

(2) Opportunities for spontaneous, valuable discussion may be lost because of the fixed sequence of content on a recording.

(3) Copyright laws are easily broken. (See Manual for General School Organization, regarding these laws.)

(4) Recordings can easily be erased if the tabs on the back of the cassette are not removed.

> *Elementary school children spend from one-half to two-thirds of their school day listening: to instructions, to class discussions, to conversations, to reports, to readings, to teacher comments, to outside noises. The quality of a child's listening, we now realize, has a direct bearing on the learning achieved and the study habits formed - throughout that child's career in school. Thus listening, although it has no content area of its own, is very much a part of the curriculum.*
>
> KINDER, J.S. 1973 Using instructional media.
> New York : 115.

2.3 Potential uses

2.3.1 Educational use

SOUND RECORDINGS can contribute to...

- Developing listening skills:
  - To distinguish deviations from correctly spoken language
  - To learn correct inflection and pronunciation
  - To learn to identify and distinguish sounds from nature
  - To learn a foreign language
  - To carry out instructions correctly
- Creating atmosphere.
- Appreciating literature and analysing characters in literature.

SOUND RECORDINGS can be used ...

As introduction to a lesson.

To convey information.

To elucidate visual images, eg. sound-slide programmes.

As an aid in memorising - e.g. an actor learning his words in a play.

As a stimulus to creative thinking, and self-realization in report-back by pupils.

In remedial work, drill, revision and repetition.

In the giving and carrying out of instructions.

In music teaching and appreciation.

For recording and listening to interviews.

In news reporting and recordings of historical and political events.

2.3.2 Practical hints for the teacher

(1) Recorded lessons can be used by pupils who have been absent, slower pupils, or pupils who wish to work ahead of the class.

(2) Make a sound map. Selectively record sounds during a walk on the school grounds. Pupils must try to detect the route followed solely by listening to the recorded sounds.

(3) Use sounds from nature as sound effects to enhance a story, for background or for comparison between natural and man made sounds.

(4) Record the voice of a stranger and let the pupils determine the age, sex and nature of the speaker as it can be deduced from the voice.

(5) Use sound recordings in typing,shorthand, drill and other exercises.

(6) Make a sound recording during a field trip and use it later for revision or as an introduction to a lesson or the next field trip.

(7) Develop listening skills by

(a) sound recognition. Record a series of simple sounds, e.g. page through a book, tear paper, saw wood and let pupils try to recognise the sounds.

(b) sounds in sequence. Record sounds that are heard in succession, e.g. lighting a stove, breaking an egg into a pan, dishing up, the sounds of knives and forks, etc., and let pupils write down what is happening.

(c) sound combinations. Record sounds, e.g. animal noises and music, separately and then mix the sounds, leave one out and let pupils identify the missing sound.

(8) Make recordings to enrich the curriculum for pupils who finish their class work long before the others,

- e.g., interesting facts with questions for pupils to answer;
- extracts concerning current affairs and let pupils comment
- assignments for further research in the media centre;
- individual recordings of pupils' assignments for report-back.

(9) Make recordings of speeches by leaders, e.g. Smuts, Hitler Churchill, as well as speeches and news reports concerning current leaders.

(10) Do remedial work, for example, for poor readers, by recording the pupil's reading, letting him listen to his own reading and discussing mistakes with him.

2.3.3 Practical hints for pupil activities

(1) Let pupils report an event on tape. Language ability can be evaluated in this way.

(2) Let pupils interview a variety of people for discussion in class.

(3) Play a cassette recording of a drama as an example. Let advanced pupils do research, write their own script, and plan dialogue and sound effects.

(4) Let pupils record categories of sound, e.g. dangerous situations, sound pollution, work noises, natural sounds.

(5) Let pupils illustrate a recording of a popular song with slides or pictures.

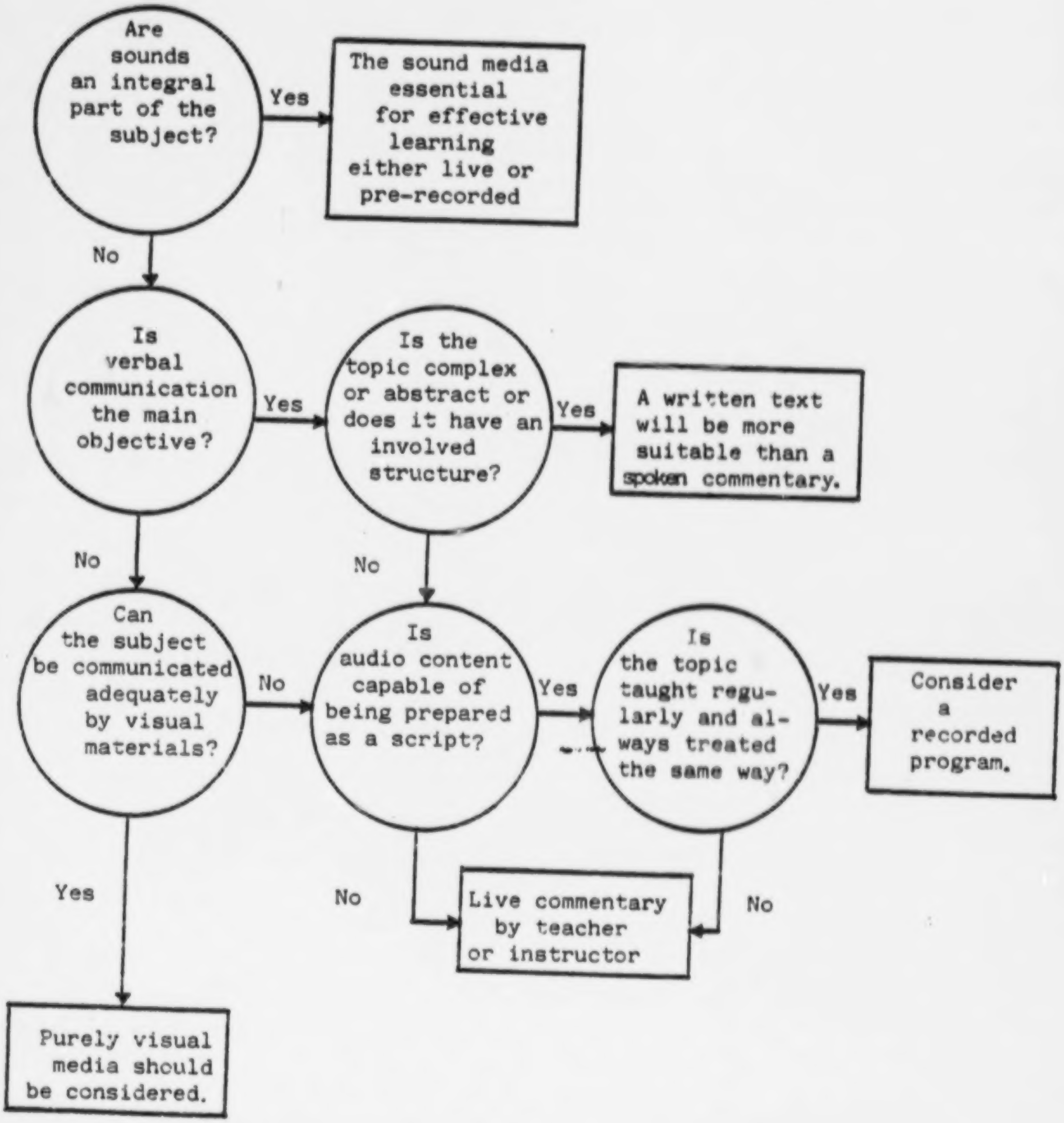
(6) Let pupils tell a story together, each contributing, e.g. for one minute, for the development of creative thinking and listening skills.

HEARING TEST TODAY
CASSADY

"My hearing is fine . . . it's my LISTENING that's not so good."

EDUCATIONAL TECHNOLOGY/August, 1980

2.4 MEDIA SELECTION


Are sounds an integral part of the subject?
Yes
The sound media essential for effective learning either live or pre-recorded
No
Is verbal communication the main objective?
Yes
Is the topic complex or abstract or does it have an involved structure?
Yes
A written text will be more suitable than a spoken commentary.
No
No
Can the subject be communicated adequately by visual materials?
No
Is audio content capable of being prepared as a script?
Yes
Is the topic taught regularly and always treated the same way?
Yes
Consider a recorded program.
Yes
No
Live commentary by teacher or instructor
No
Purely visual media should be considered.

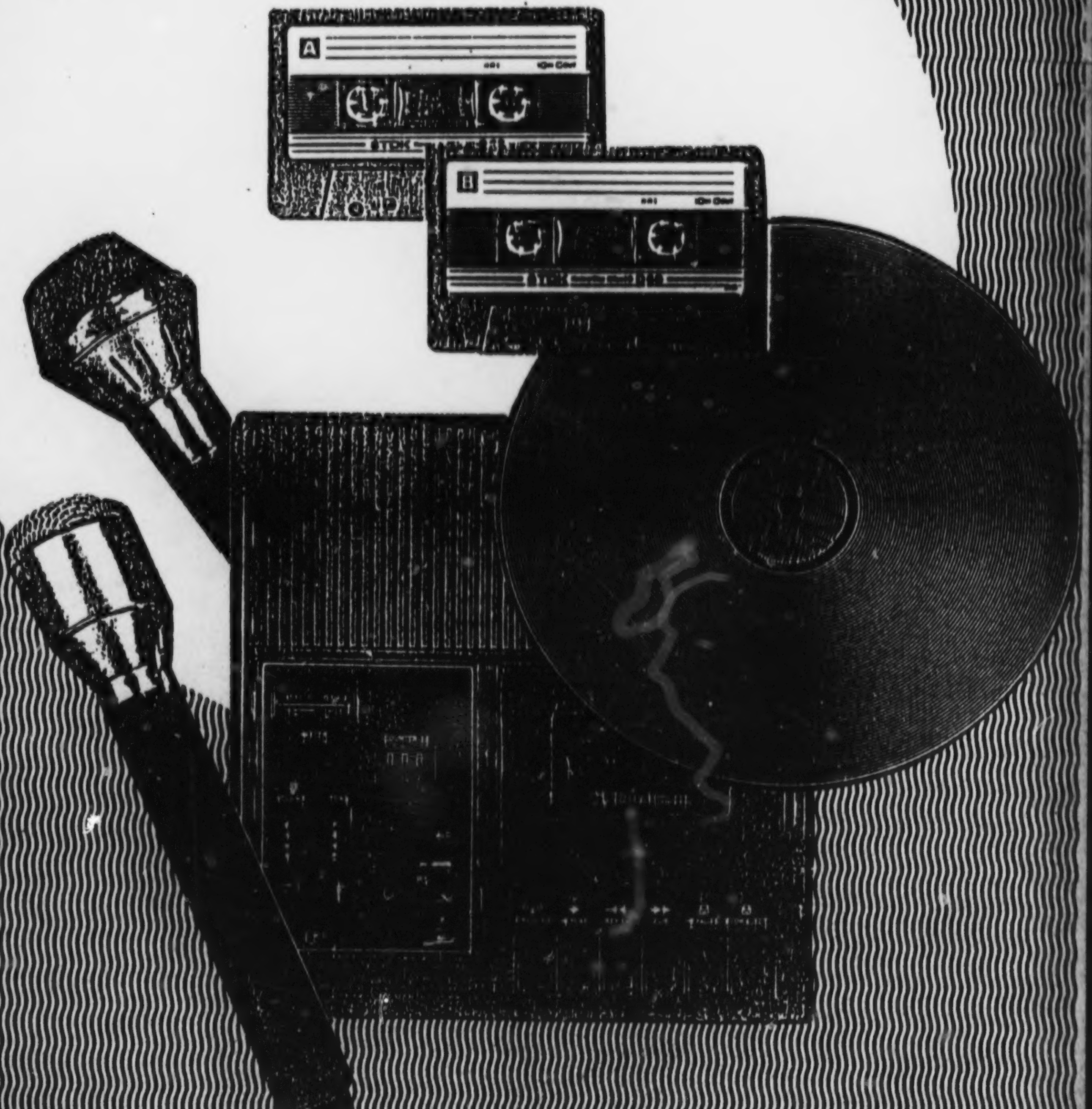
Practical work: Use the diagram above to select media for one of the following lessons:

1. The history of Noah and the Ark
2. An Afrikaans or English peom. with some background on the poet
3. A visit to a farm
4. Distinguish between the sound of different woodwind/string/brass instruments in a symphony orchestra
5. Tell a story/'ghost story/horror story .

Macquarie University, 19 :2

7

MAKING SOUND RECORDINGS



3. SOUND RECORDING

3.1 Criteria for sound recordings

3.2 Planning for sound recordings

3.2.2 Practical hints for making a sound recording

(1) Place
(2) Environment
(3) Positioning
(4) Microphones
(5) Making of the recording
(6) Made a mistake
(7) The recording ...
(8) Interviews

3.2.3 Sound effects

3. MAKING SOUND RECORDINGS

3.1 Criteria for sound recordings

3.1.1 Pronunciation of words must be clear and correct. The tempo should not be too fast or too slow. A slow tempo can become monotonous. Shorter and longer sentences must be used in logical sequence.

3.1.2 Avoid affected speech or irritating "uh" sounds, as well as distracting background noises.

3.1.3 The content must be suitable for the medium.

3.1.4 Recordings must be short and to the point.

3.1.5 Pupils must be actively involved by having them study illustrations or complete work sheets during the programme.

3.1.6 Work sheets must be well planned and instructions clear and simple.

3.1.7 The content must be correct and educationally sound.

3.1.8 Subject terminology should be familiar to pupils.

3.1.9 Avoid repetition. Parts of the tape can easily be rewound if repetition becomes necessary.

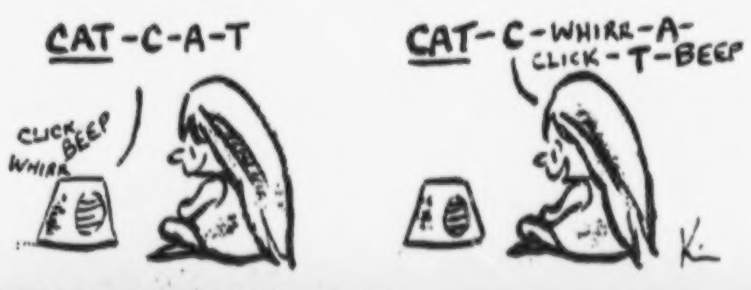
3.1.10 Teach the pupils beforehand how to stop the tape at a given sign, e.g. a bell, in order to answer questions or to carry out other instructions. This avoids having to give the same instructions repeatedly.

3.1.11 Different voices, dialogue and sound effects can ensure variety.

3.1.12 Background music and sound effects can be used to create atmosphere. They must be selected and used with circumspection and should never dominate the commentary.

N.B. A practice run before the final recording can be invaluable for solving problems beforehand.

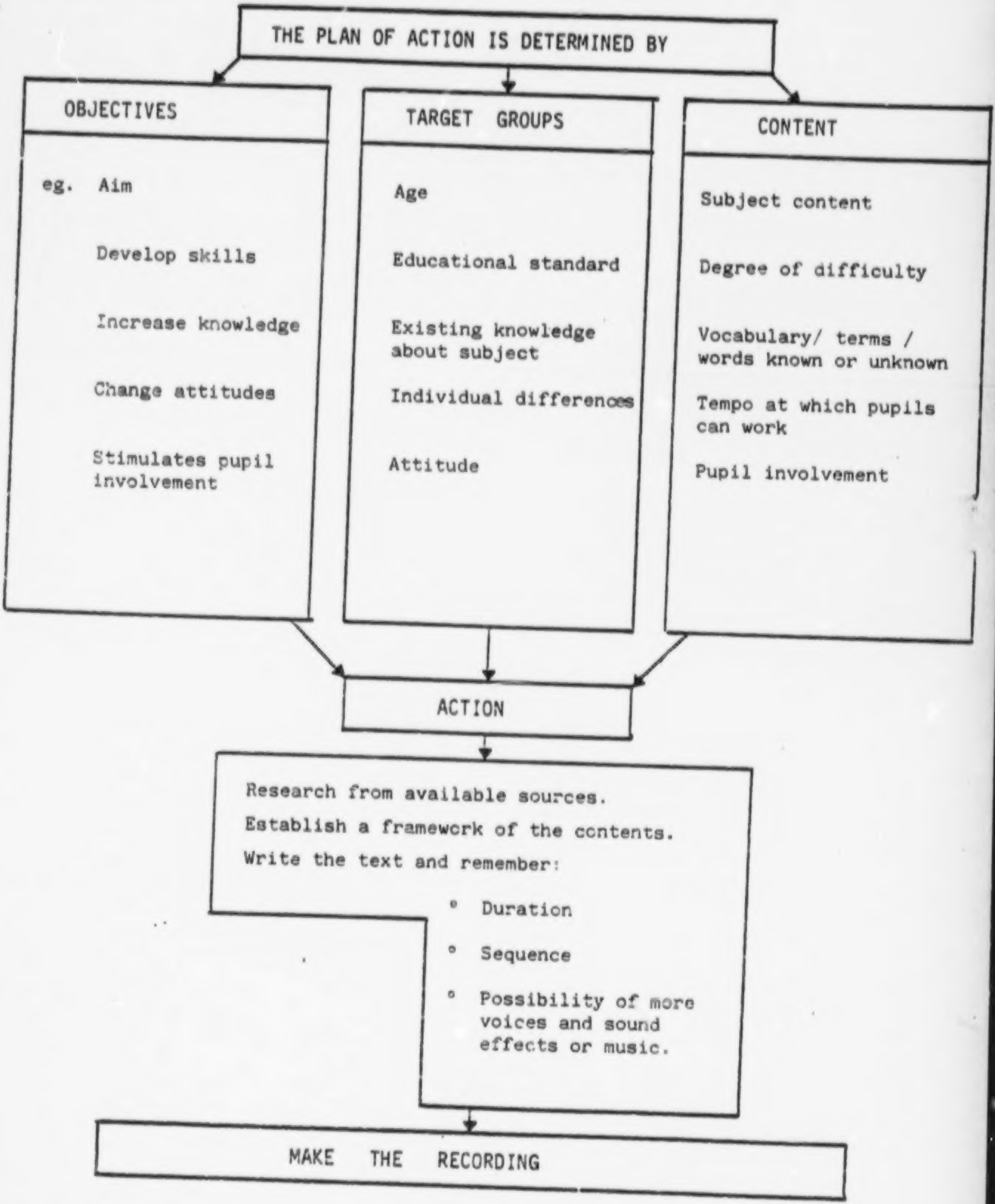
Learning Can Be Fun



EDUCATIONAL TECHNOLOGY/November, 1979

3.2 Planning for a sound recording

3.2.1 Basic principles



THE PLAN OF ACTION IS DETERMINED BY

OBJECTIVES

eg. Aim

Develop skills

Increase knowledge

Change attitudes

Stimulates pupil involvement

TARGET GROUPS

Age

Educational standard

Existing knowledge about subject

Individual differences

Attitude

CONTENT

Subject content

Degree of difficulty

Vocabulary/ terms / words known or unknown

Tempo at which pupils can work

Pupil involvement

ACTION

Research from available sources.

Establish a framework of the contents.

Write the text and remember:

- Duration
- Sequence
- Possibility of more voices and sound effects or music.

MAKE THE RECORDING

3.2.2 Practical hints for making a sound recording

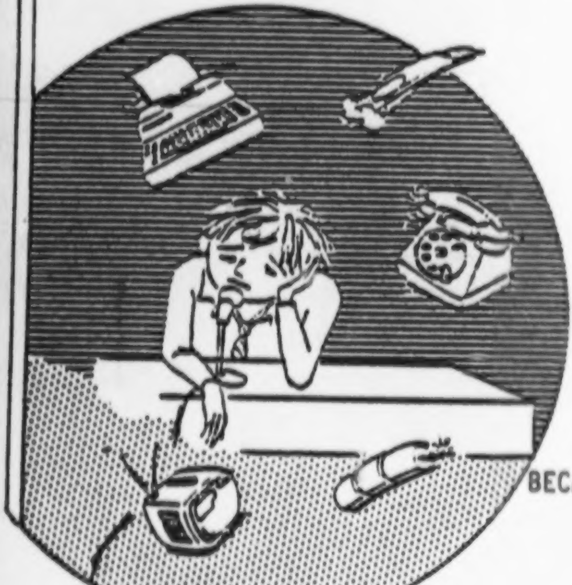
(1) PLACE

- A small furnished room is suitable
- Carpets, curtains and upholstered furniture
- Drawn curtains
- A blanket hung behind the speaker

Absorbs sound and prevents echoes

- A study carrel covered with a blanket makes a suitable recording booth

(2) ENVIRONMENT



AVOID Background noise such as:

Cars
Aeroplanes
Telephones
Bird song
Creaking chairs
Buzzing of fluorescent lights
Fans
Noise of recording equipment
etc.

BECAUSE

- It distracts the listener
- It breaks concentration
- It hampers effective use of the medium.

POSITIONING

A table model microphone is placed on a folded towel

and

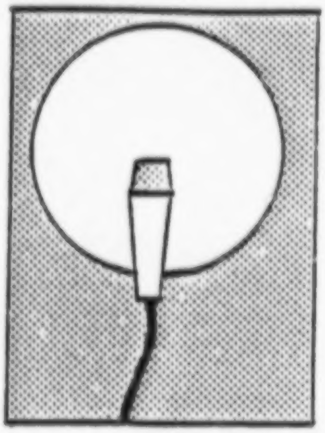
the cassette recorder and microphone are placed on different surfaces

to eliminate vibrations.

(4) MICROPHONES

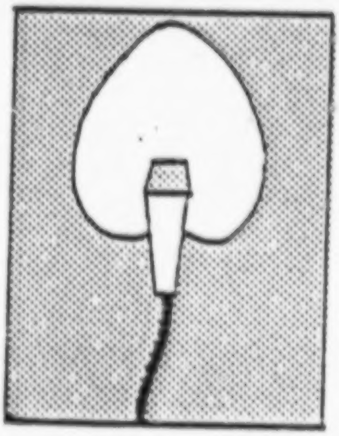
A microphone of good quality is recommended for clear sound.

Microphones are classified according to their sensitivity pattern into:



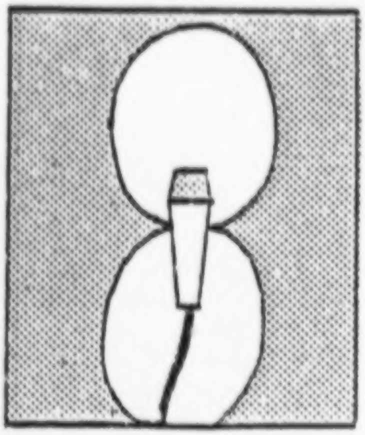
OMNIDIRECTIONAL MICROPHONE

FEATURE:	This microphone is sensitive to sound from all directions.
USE:	Recordings of groups of people during interviews or discussions.



CARDIOID MICROPHONE

FEATURE:	Sensitive to sound only from one side. Mutes sound from other directions.
USE:	Recording of single speakers.



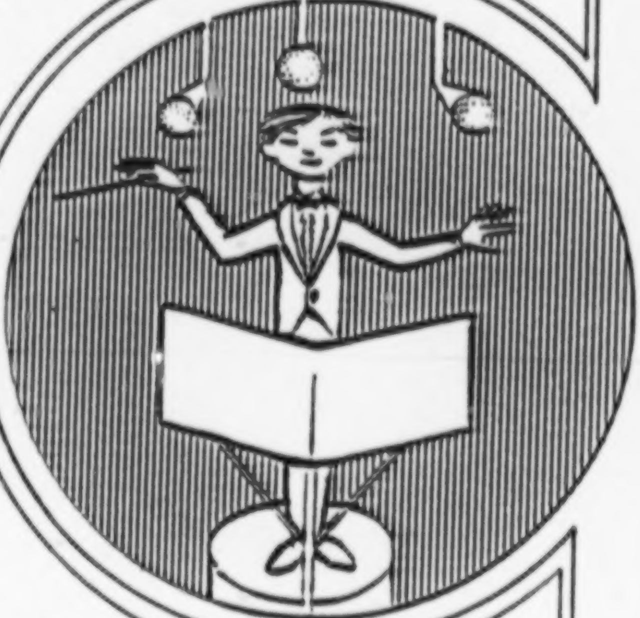
BI-DIRECTIONAL (FIGURE 8) MICROPHONE

FEATURE:	This microphone is sensitive to sound from two opposite sides.
USE:	Recording two speakers with one microphone.

(5)

MAKING A RECORDING

- Be prepared. Use only one page for text or use cards or place pages in a plastic bag to eliminate the rustling of papers.
- Sit comfortably and relax. Speak forward in the mouth as in normal conversation.
- Speak directly into the microphone without turning your head to the side. This movement causes fluctuations in volume.
- Don't speak too closely to the microphone or set the volume too high. This causes distracting distortion of s, f, p, and b sounds.
- Keep a constant distance of approximately 30 cm from the microphone.
- Use volume and sound controls judiciously.
  - Too much volume causes background noises to be picked up.
  - Too little volume causes tape hiss.



REMEMBER: The microphone picks up all noises that reach it. It doesn't listen selectively like the human ear.

(6)

MADE AN ERROR?

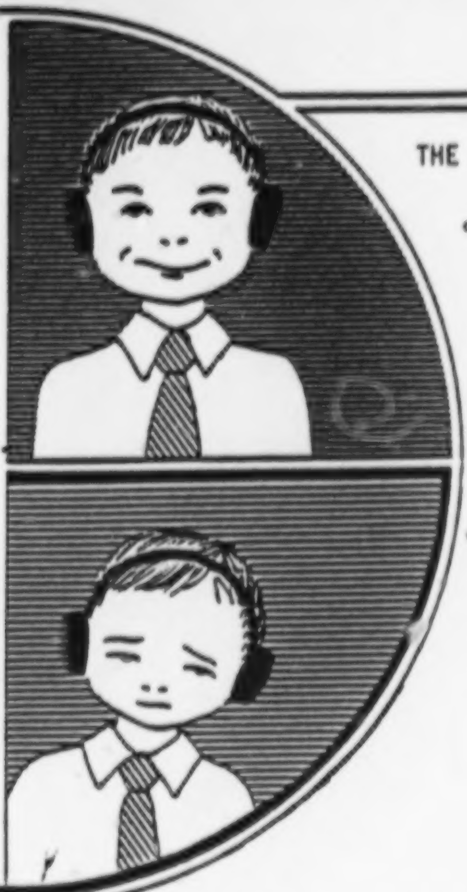
THE MOST EXPERIENCED READERS DO!

- Stop the tape immediately
- Rewind the tape to a pause after a correct sentence. This pause is necessary to restart the machine and repeat the sentence
- First press PAUSE and then RECORD and PLAY simultaneously.
- Turn the volume down.
- When ready to proceed, release pause, turn the volume up to the correct setting and read on. This procedure eliminates a clicking noise which spoils the recording.

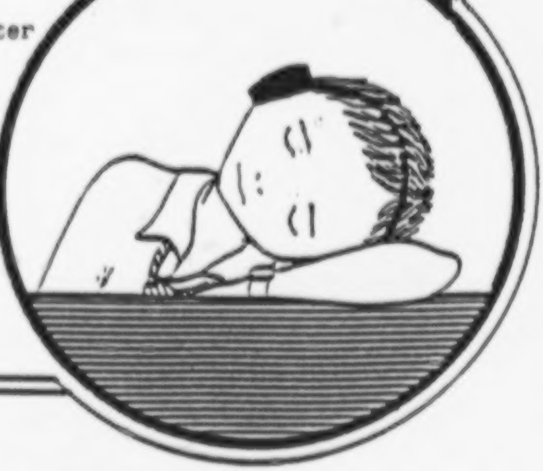
> *Voordat enige hulpmiddel ten volle benut kan word, is dit dus duidelik dat die leerkrag se kennis verder sal strek as om blote operateur van die apparaat te wees. Die bandmasjien kan gebruik word om mee te skep. Dit op sigself is 'n kuns wat hoogs gespesialiseerd kan raak.*
>
> GROBLER. 1982:1

(7)

THE RECORDING



- A recording should be brief and to the point.
- The attention of pupils wanes if they have to listen to a recording for more than 10 minutes.
- Variety keeps pupils interested.
- Assignments to be carried out after specific information has been conveyed, ensure active involvement of pupils.
- A well-planned work chart will ensure the successful use of the recording.



……

We tend to overlook the valuable uses of sound in the classroom. Sound is not just a collection of noises. It is part of a child's environment. He identifies it with all his activities - good sound, bad sound, pleasant noises, active noises, sad melodies, happy jingles. Effective teaching can no longer rely as it has in the past on the printed word of the text and the spoken word of the teacher.

TINDALL, K, COLLINS, B & REID, D. 1973 : The electric classroom. New York : McGraw Hill. 41.

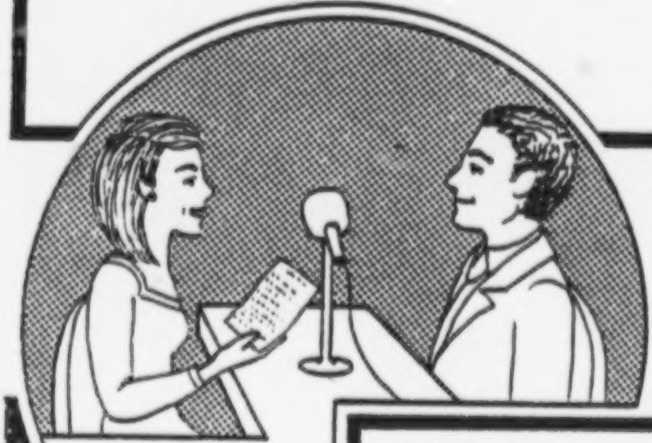
……

(8)

INTERVIEWS

Before

- Decide what the interview will be about
- Explain to the person what you are going to do and the reason for the interview
- Discover as much as possible about the person and his field of interest.
- Compile a list of questions after doing the necessary research.



During

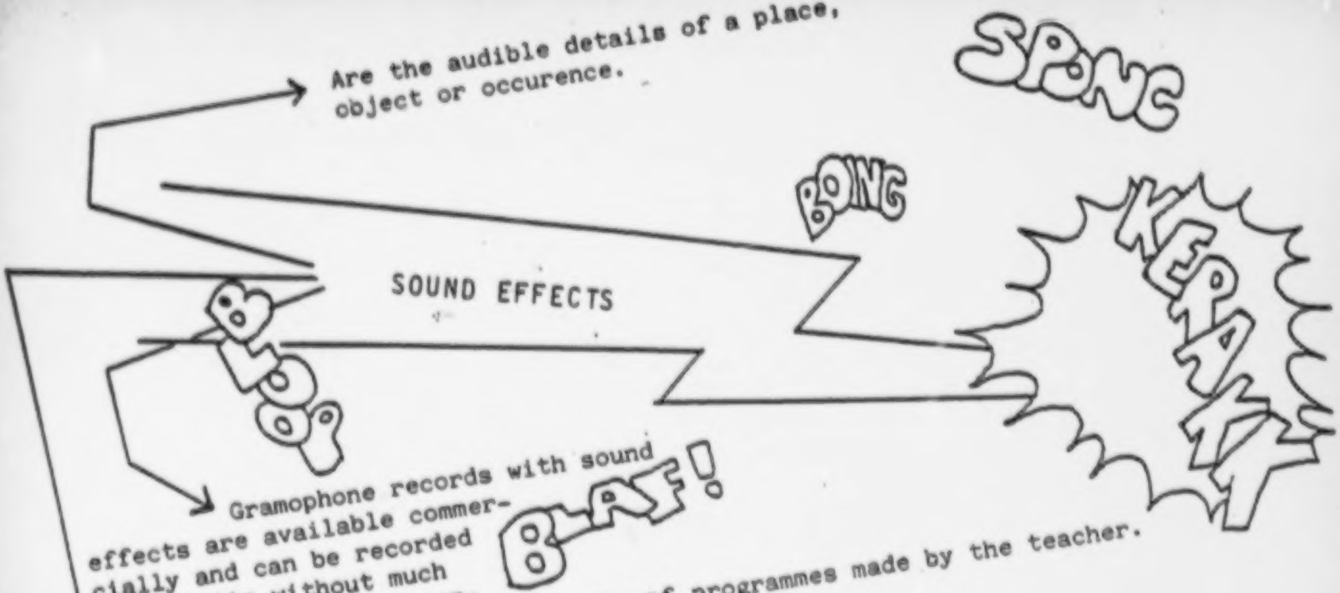
- Record in a quiet, pleasant spot, unless background noise is needed for atmosphere.
- The interviewer and the person being interviewed should sit on both sides of a bi-directional microphone placed on a table.
- Formulate the questions so that they do not sound as if they are being read.
- Don't dominate the interview.

Editing

- Use two cassette tape recorders, A and B.
- Play back the original recording on A and mark on your text those points to be cut.
- Rewind.
- Place a blank cassette on recorder B, press PAUSE and RECORD and PLAY simultaneously.
- Press PAUSE and PLAY on recorder A.
- Release PAUSE on both machines to record the parts wanted.

Press PAUSE on recorder B to cut unwanted parts.

N.B. A special connecting cord with two five-point (DIN) plugs is used to connect the two recorders.



SOUND EFFECTS

Are the audible details of a place, object or occurence.

Gramophone records with sound effects are available commercially and can be recorded on cassette without much trouble. Remember to mention source and time in bibliography of programmes made by the teacher.

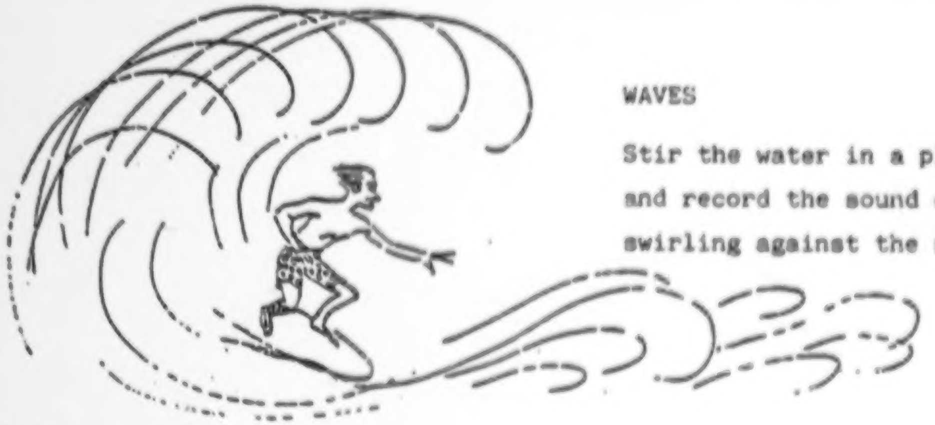
RAIN 15 - 20 Dried peas being rolled to-and-fro in a fine wire mesh or sieve. Place the microphone directly under the mesh. Two sieves can be used to keep the sound from fluctuating.

WIND

Draw a piece of silk cloth over two or three soft wooden boards. Wind strength can be regulated by increasing or decreasing resistance.

THUNDER

Vibrate a large thin sheet of metal near the microphone, or record piano chords and play back at half speed.



WAVES

Stir the water in a plastic bucket and record the sound of the water swirling against the sides of the bucket.

SURF

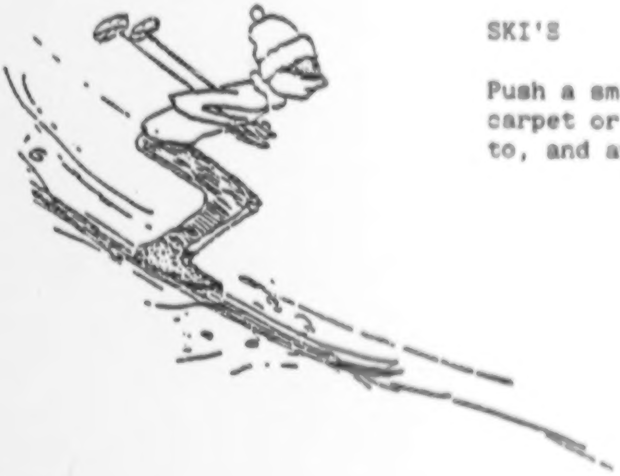
Draw two brushes over a length of sheet metal in opposite directions.

ROWBOAT

Row rythmically with two small slats in water and let a rusty hinge squeek in unison.

SHIP'S WHISTLE OR FOGHORN

Blow in a bottle filled with water. The lower the level of the water in the bottle, the deeper the sound.



SKI'S

Push a small flat piece of board over a carpet or a thick hairy blanket closer to, and away from, the microphone.

LOCOMOTIVE

Wrap two small sticks in sandpaper and rub them against each other.

JET AIRCRAFT.

Hold an electric hair drier in front of the microphone and use a piece of cardboard between the sound source and the microphone to let the sound approach or recede.

FOOTSTEPS

- in a wood/grass. Crush a bundle of old recording tape together in your hand.
- in snow. Do the same with small bags of flour.

A PISTOL SHOT

Strike a table with the flat of a ruler close to the microphone.

HOOFS TROTTING

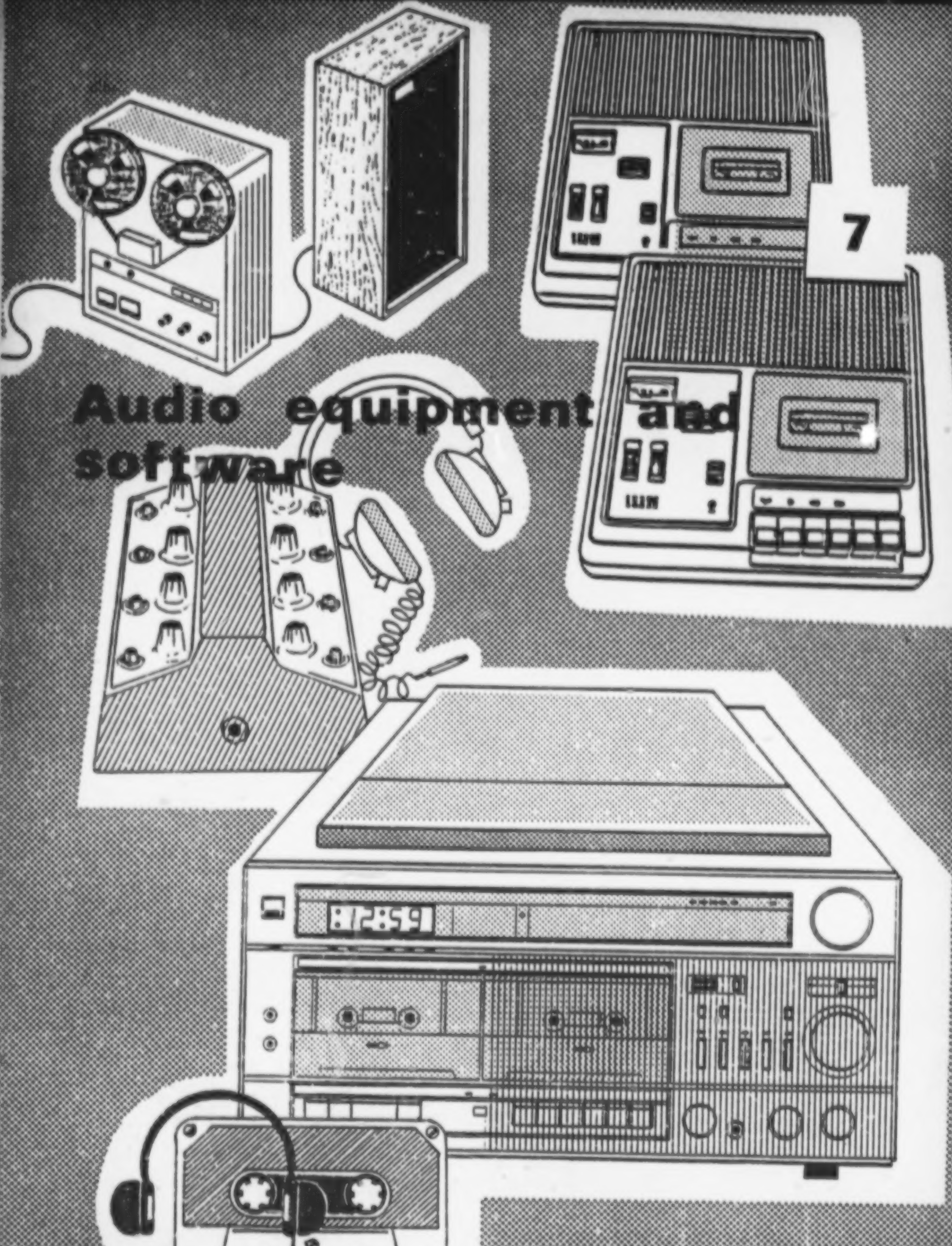
Strike the edges of two coconut halves together. Cover with a cloth and the horse is running through forest or marshland.

TELEPHONE VOICE

Speak into a plastic cup or earthenware bowl.

7

Audio equipment and software

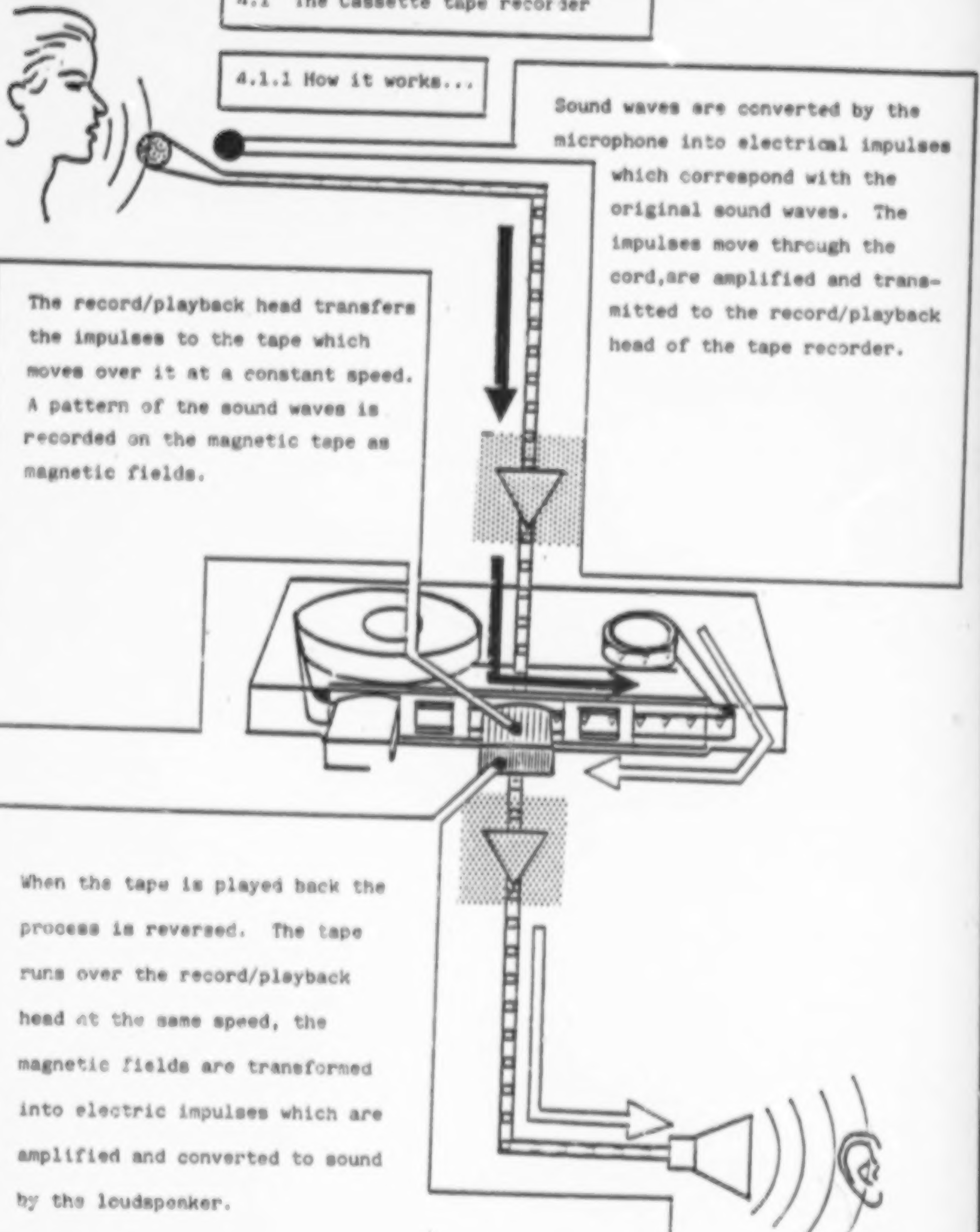


4. SOUND HARDWARE AND SOFTWARE

- 4.1 The cassette tape recorder
  - 4.1.1 Operation
  - 4.1.2 Use
  - 4.1.3 Potential uses
  - 4.1.4 Care
- 4.2 The music centre
  - 4.2.1 Uses
  - 4.2.2 Educational use
  - 4.2.3 Care of the turntable
- 4.3 The junction box and earphones
- 4.4 Software
  - 4.4.1 Audio cassettes
  - 4.4.2 Gramophone records
- 4.5 Purchasing and organising
  - 4.5.1 Hardware
  - 4.5.2 Audio cassettes
  - 4.5.3 Gramophone records

4.1 The Cassette tape recorder

4.1.1 How it works...

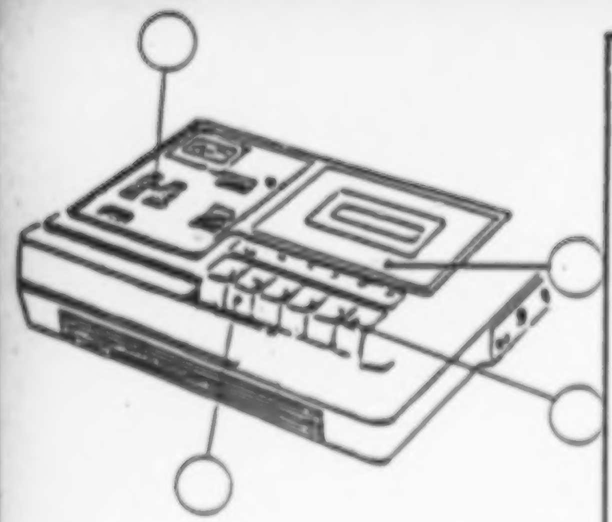


Sound waves are converted by the microphone into electrical impulses which correspond with the original sound waves. The impulses move through the cord, are amplified and transmitted to the record/playback head of the tape recorder.

The record/playback head transfers the impulses to the tape which moves over it at a constant speed. A pattern of the sound waves is recorded on the magnetic tape as magnetic fields.

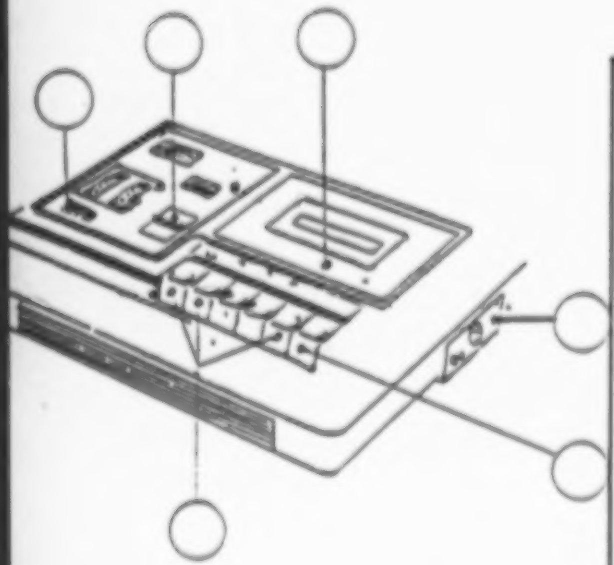
When the tape is played back the process is reversed. The tape runs over the record/playback head at the same speed, the magnetic fields are transformed into electric impulses which are amplified and converted to sound by the loudspeaker.

(2) Playing a tape



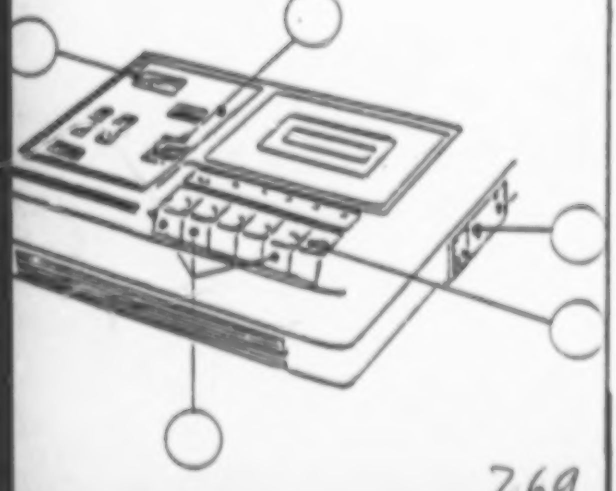
1. Press STOP/EJECT key to open cassette chamber.
2. Insert cassette into chamber with exposed side facing you. When spindles engage hubs, close cover of chamber.
3. Press PLAY.
4. Adjust VOLUME and TONE control.

(3) Recording (ALC)



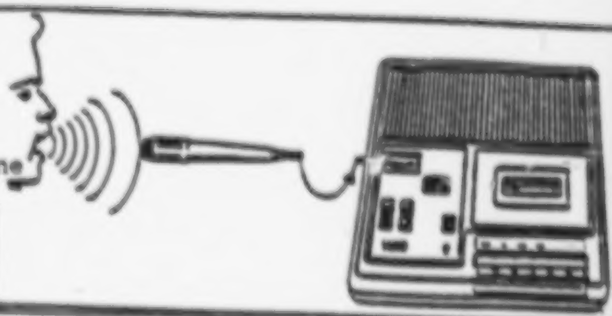
1. Move AUTOMATIC LEVEL CONTROL to the "ON" position.
2. Insert a tape.
3. Press PAUSE and then RECORD and PLAY keys. Release PAUSE for recording to begin.
4. Press STOP/EJECT key at the end of the recording session.
5. When recording, connect remote control microphone into MIC/REMOTE jack or ...
6. Use built-in microphone.

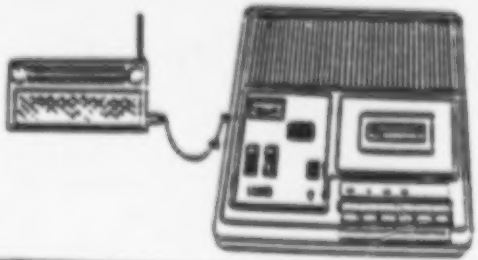
(4) Recording (manual)



1. Set the ALC switch into the "OFF" position.
2. Press PAUSE and then RECORD and PLAY keys.
3. Monitor the sound source by watching RECORD LEVEL indicator. Adjust VOLUME until meter needle is out of the red sector.
4. Release PAUSE key when level is correct and to begin recording.
5. Headphones - plug into jack. When using rear jacks, the master jack must be used to mute the speaker.

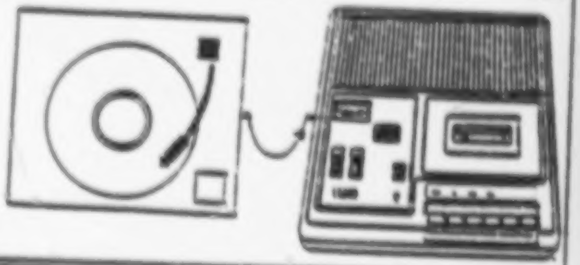
Direct recordings are possible with the aid of a separate microphone or the built-in microphone of the cassette tape recorder.

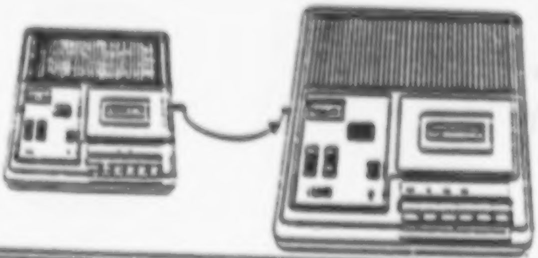




Recordings can be made of radio programmes by using the correct connecting cord. Suitable connecting cords are commercially available.

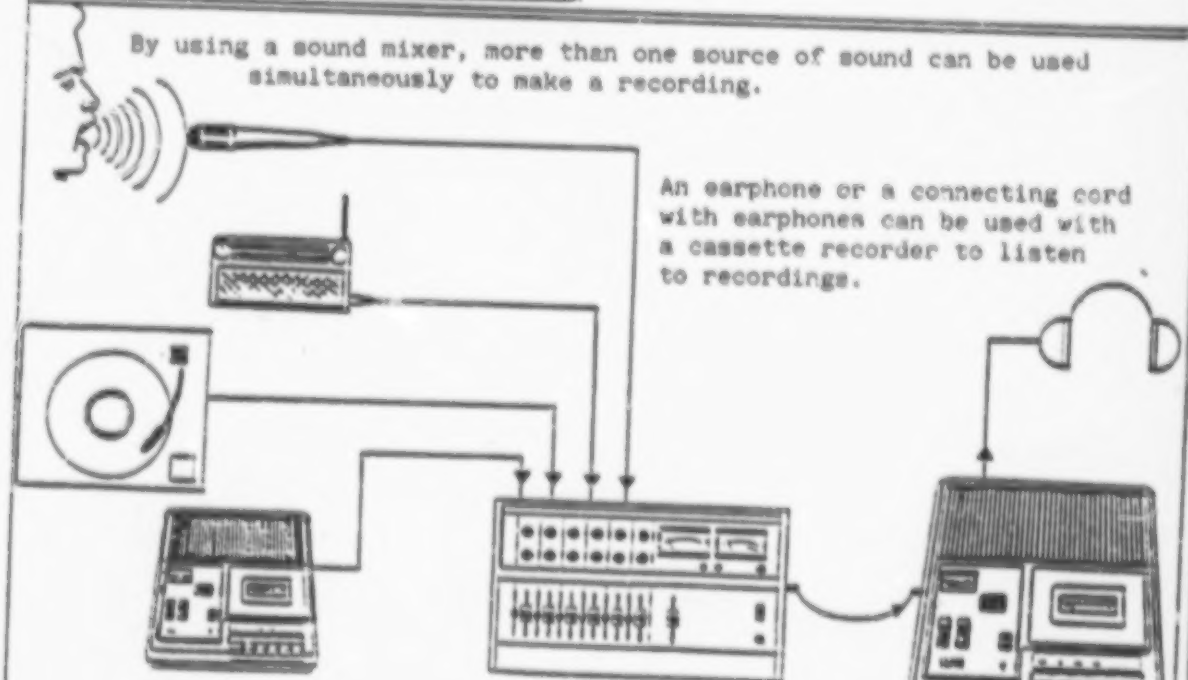
Gramophone records can be recorded on tape by using the correct connecting cord.





Tapes can be copied by using the correct connecting cord. Tapes can be edited in the same manner.

By using a sound mixer, more than one source of sound can be used simultaneously to make a recording.



An earphone or a connecting cord with earphones can be used with a cassette recorder to listen to recordings.

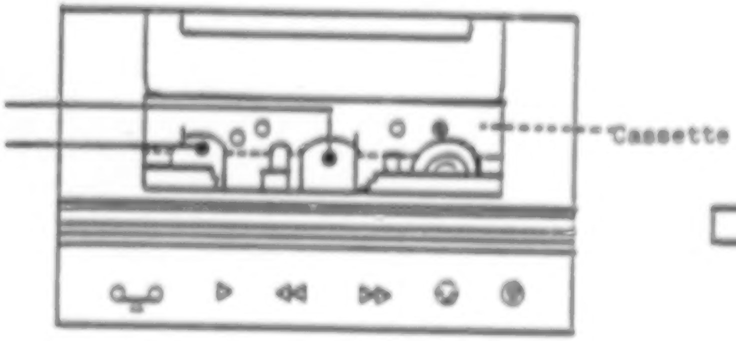
Compiled from: Grobler (1982:35) and Macquarie University (1978:35) as adapted.

4.1.3 How to care for your cassette tape recorder

(1) Tape recorders should be cleaned after every 20 hours' use.

(2) The recording heads

- Dirty recording heads will produce muted or distorted sound.
- Use cotton buds soaked in a solvent such as methylated spirits or pure alcohol to clean the eraser head and the tape guides and capstans.
- Press PLAY without inserting a cassette to expose the recording heads.



(3) Magnetising

- No metal object may ever be used on or near the recording heads.

  This may magnetise the heads causing sound distortion.

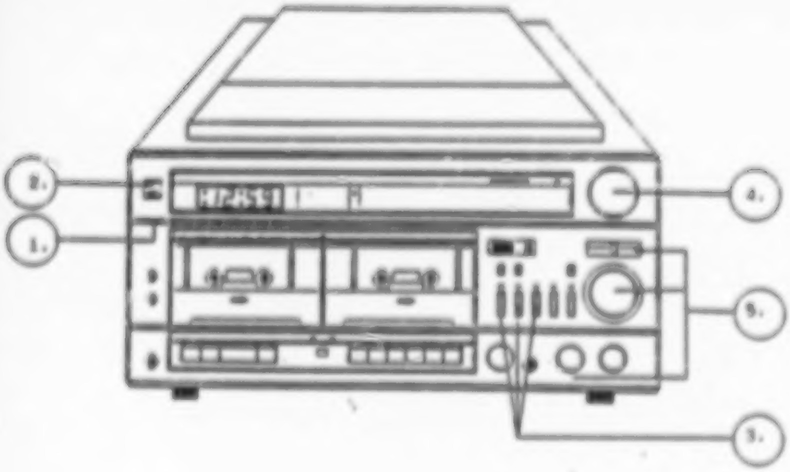
- It can also be caused by long use.

- A demagnetising unit is available commercially with complete directions

  for use so you can solve the problem yourself.

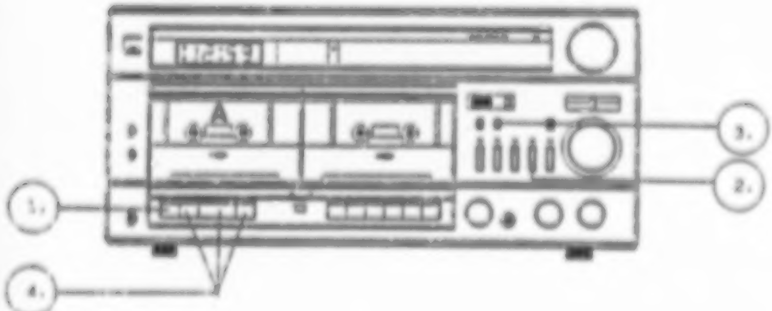
- When the tape recorder is taken in for maintenance, demagnetising of the recording head should be specified.

4.2.1. Operating the music centre



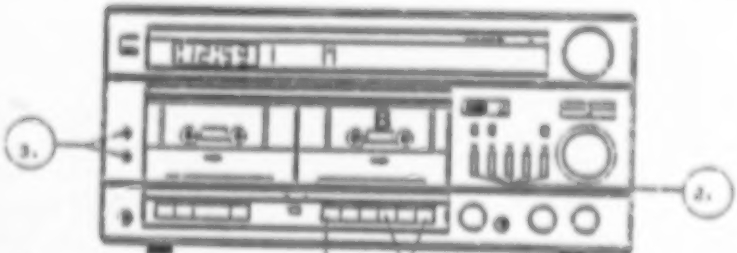
(1) Radio operation

1. Depress AUTO-MANUAL switch into the manual position.
2. Depress the POWER switch.
3. Depress relevant selector switch (FM, MW or SW).
4. Use TUNING control for station selectio
5. Adjust BASS, TREBLE, VOLUME and BALANCE.



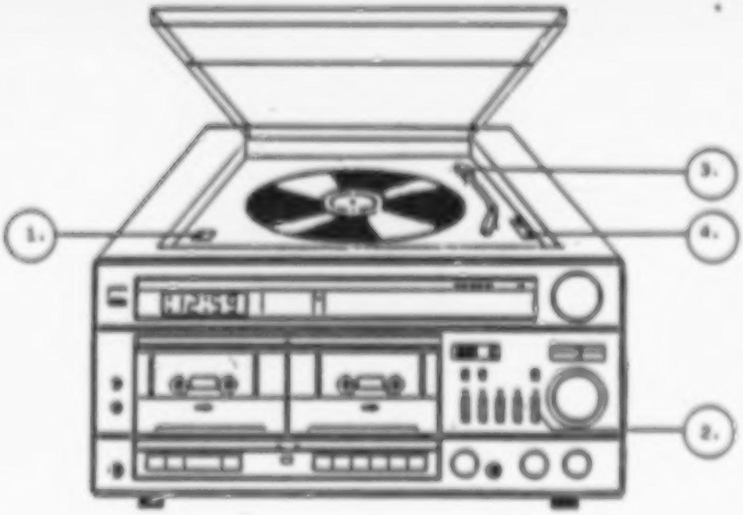
(2) Cassette playback (Tape A)

1. Open compartment A by pressing STOP/ EJECT button. Insert tape (playing surface facing downward).
2. Press the tape function switch.
3. Set the TAPE SELECTOR switch to Tape A by depressing it.
4. Activate FAST-FORWARD, REWIND or PLAY function by depressing the relevant button.
5. Stop recording or playback by pressing STOP/EJECT button (see step 1).



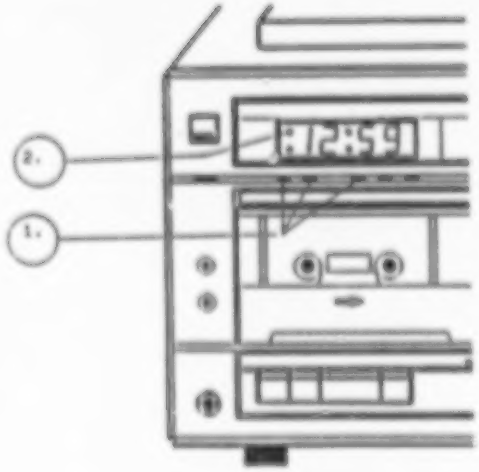
(3) Cassette recording (Tape B)

1. Depress the RECORD and PAUSE button. Release the PAUSE button when you want the recording to begin.
2. To record from either radio, tape or phone, press the relevent selector switch.
3. Use microphone jacks for microphone connection.
4. VOLUME and frequency (BASS and TREBLE are automatically regulated.



(3) Record player

1. Select playing speed.
2. Press PHONO selector switch.
3. The motor is activiated/de-activated by moving the arm to/from the record.
4. The arm is lowered/raised by using the switch next to the pick-up arm.



(5) Operating the clock

1. Press the TIME key and either the fast or slow key simultaneously.
2. Adjust the time display until the L E D light display illuminates for A.M. time display or remains off for p.m. time display.

4.2.2. Educational use of the Music centre

(1) The trade name 'music centre' is used for the record player with cassette tape deck supplied to S I, S II, P I and P II schools for use in the media centre and to be used for manufacturing audio-visual programmes. A portable record player is supplied to P III, P IV and preprimary schools.

(2) Cassette tape recordings can be made from records or from one tape to another. It is important to note all records from which parts are copied on the recording form supplied to schools. These forms are kept in the media centre as proof that authorship has been acknowledged and for possible royalties that may have to be paid to licensing bodies. Also see revised chapter 30, Copyright law, sent to schools in 1984.

(3) Recording radio programmes of the S.A.B.C. is an infringement of the copyright law. As soon as a Department of the SABC for Educational Afrikaans and English Radio and Television programmes starts functioning the necessary steps will be taken to make it possible for schools to use educational radio programmes.

N.B. The music centre must be placed in the media centre for use as explained above. It is not suitable for use in a school hall or elsewhere and may not be used for any other purpose.

4.2.3 Care of the turntable

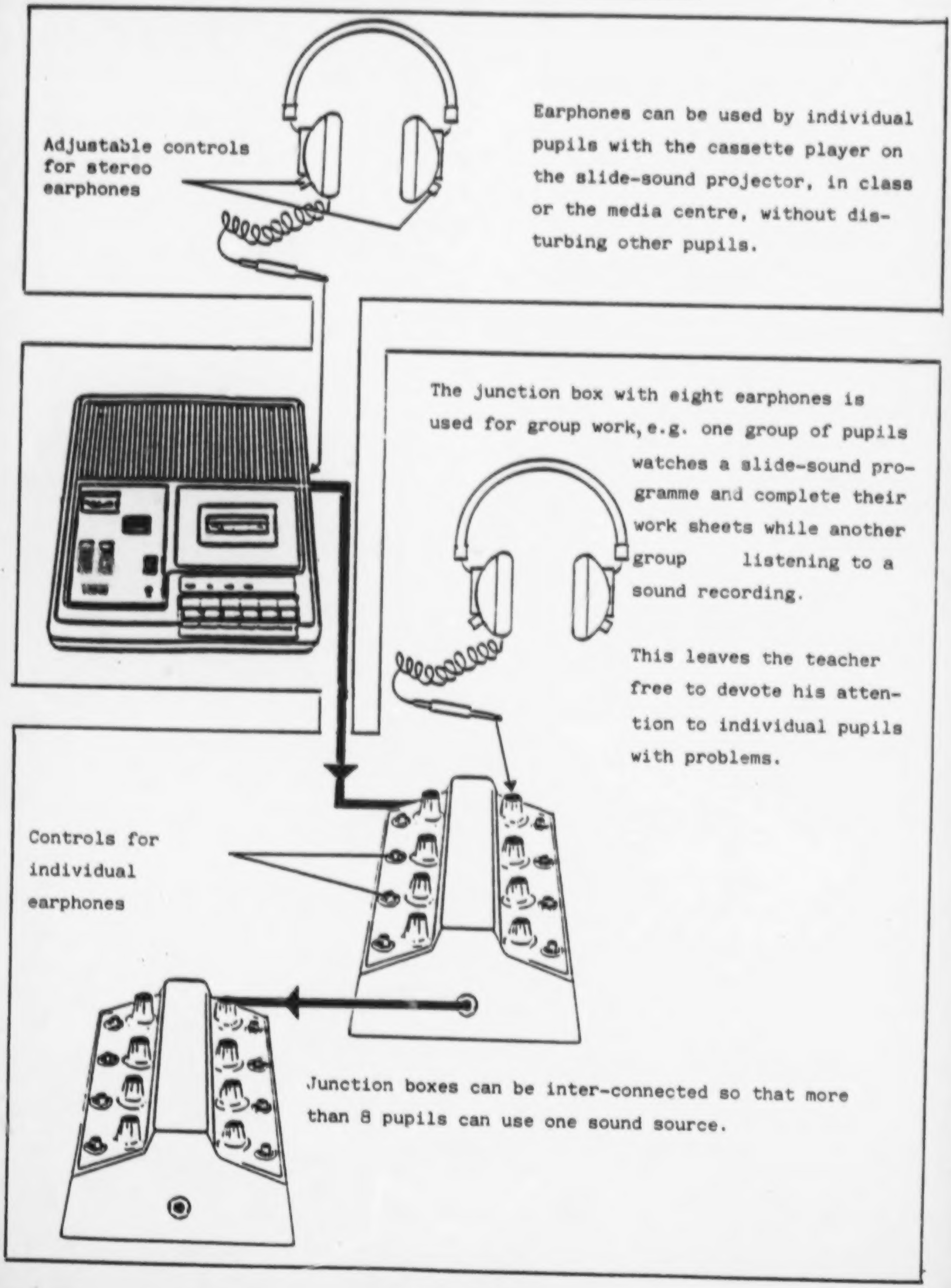
(1) Store in a dry, cool, well ventilated place away from direct sunlight, or other sources of heat.

(2) Dust is the turntable's greatest enemy. Clean the room with a vacuum cleaner rather than a broom.

(3) Old styluses can damage records. Replace after ± 1,000 hours' use.

(4) Clean the stylus with a stylus brush dipped in alcohol. Move it gently forwards and backwards over the stylus.

4.3 The junction box and earphones


Adjustable controls for stereo earphones
Controls for individual earphones

Earphones can be used by individual pupils with the cassette player on the slide-sound projector, in class or the media centre, without disturbing other pupils.

The junction box with eight earphones is used for group work, e.g. one group of pupils watches a slide-sound programme and complete their work sheets while another group listening to a sound recording.

This leaves the teacher free to devote his attention to individual pupils with problems.

Junction boxes can be inter-connected so that more than 8 pupils can use one sound source.

4.4 Audio software

4.4.1 Audio cassettes

Care of cassettes

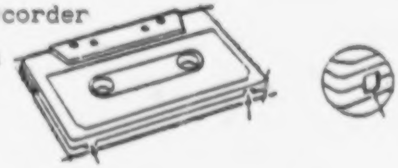
- Extremes of cold or heat can damage cassettes. Store in a cool place away from direct sunlight or other sources of heat.

- Cassettes must never get wet.

- Strong magnetic fields (e.g. loudspeakers or electric motors etc.) can damage cassettes stored too close to them.

- Valuable recordings can be protected against accidental erasure by breaking out the square tabs at the back. If the cassette is to be used again for recording the openings need only be covered by adhesive tape.

  Cheap cassettes can damage the recorder by shedding ferro oxide particles which may get into the mechanism of the machine.



4.4.2 Gramophone records

Care of gramophone records

(1) Frequent use by teachers and pupils may damage records. Record the record on cassette and keep the record as a master for further use in the media centre.

(2) Records readily gather dust because of their natural static electricity. To counter this problem commercially available antistatic material can be used. An anti-static mat, replacing the standard turntable mat can also help to reduce the static electricity in the records.

(3) Dust is removed from the record by wiping with a record brush along the grooves.

(4) Handle the record only along the rim and in the middle.

(5) Put the record away as soon as possible after use. Place the record inside the inner envelope of paper or plastic and then slide it into the outer cover in such a way that dust is kept out.

" ARE YOU SURE HE'S LISTENING TO A LANGUAGE RECORD ? "

4.5 Purchasing and organising

4.5.1 Hardware

Audio-visual hardware is supplied to schools as extra-ordinary items (B/E) and appear in the Catalogue for the Media Centre. From 1984 onwards these items have to be budgeted for.

Periodically the TED purchases hardware which is sent to schools without their having budgeted for it. The Audio-Visual section of the Education Media Service uses the inventory of hardware received from schools annually as a basis for determining the requirements of schools and for compiling distribution lists for the supply of hardware. It is important that schools keep the Audio-Visual section informed of hardware bought from school funds or of the addition of classrooms so that these inventories can be kept up to date.

In the event of hardware supplied by the TED being damaged beyond repair or stolen, it should be written off on forms TED 100 and TED 405, which are to be sent to the local School Board, together with a technical or police report, who in turn will refer it to the Audio-Visual Section. A requisition form, TED 67, may accompany the above documents for replacement of the lost equipment.

All hardware must be entered on TED 4 and a separate stock register sheet, (example attached) must be kept for each item in order to have a complete record of existing stock.

Each individual item of stock must be marked with a a symbol and acquisition number, eg. CR 10 (for cassette recorder number 10), the name of the school and TED (for hardware supplied by the Department) or TEDs (for hardware bought from school funds). Brief directions for use must also be attached to each item while directions for use provided by the manufacturer should be kept on file for further reference.

For further information see: The administration of the the media centre : Information Guide no. 8, D 94.

STOCK REGISTER FOR HARDWARE

A. PARTICULARS:

1. MAKE: ....
2. SYMBOL AND ACQUISITION NO.: ....
3. CATALOGUE NO. .... 4. PRICE ....
5. SERIAL NO. .... 6. MODEL NO. ....
7. GUARANTEE CERTIFICATE NO. ....
8. FIRM .... 9. TELEPHONE ....
10. ACCESSORIES ....
11. DATE OF RECEIPT ....
12. DATE WRITTEN OFF ....

B. MAINTENANCE

DEFECT	FIRM	DATE DESPATCHED	RECEIVED BY	DATE RETURNED	COST

DATE OUT	NAME SIGNATURE	PLACE	ADDRESS	DATE RETURNED INITIAL	STOCK TAKING

280

4.5.2 Audio cassette

Basic software, e.g. blank cassette tapes, is ordered according to the guidelines laid down in the Catalogue for the Media Centre. If purchased from school funds it should be entered in a stock register on receipt and record should be kept of issue to staff members.

The Media Guide, available in the media centre contains titles of approved sound recordings available from companies per TED 68. Periodically sound recordings are centrally supplied from Education Media Service.

Sound recordings are kept in the media centre according to prescribed procedure. Education Media Service also has a comprehensive range of sound recordings that may be borrowed by schools.

4.5.3 Gramophone Records

Consult the Media Guide for titles of approved records that may be purchased per TED 68 from the suppliers. Storage is carried out according to prescribed procedure in the media centre. For further information see The Administration of the Media Centre, Information Guide no. 8, D 98.

Recommendation: Make a cassette recording of the gramophone record and keep the record as a master. Cassette recordings are easier to transport and handle, and are not as prone to damage.

STOCK REGISTER FOR BASIC MATERIAL

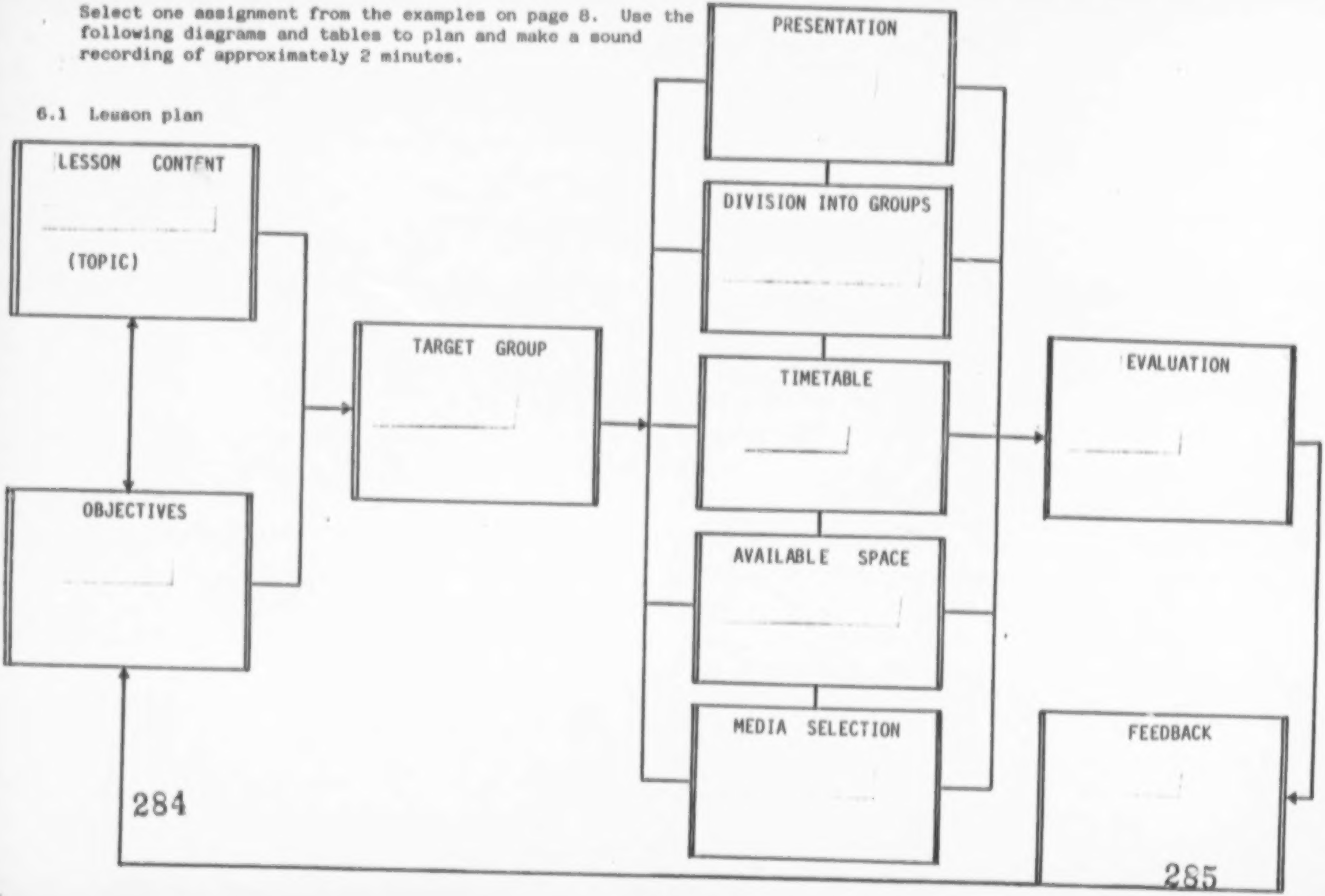
DESCRIPTION ....

Date	Quantity		Cumulative Total	Date used	Requisitioned by	Purpose	Quantity	
	In Stock	Re-ceived					Used	In stock
282							283	

6. WORKSHOP

Select one assignment from the examples on page 8. Use the following diagrams and tables to plan and make a sound recording of approximately 2 minutes.

6.1 Lesson plan


LESSON CONTENT
(TOPIC)
OBJECTIVES
TARGET GROUP
PRESENTATION
DIVISION INTO GROUPS
TIMETABLE
AVAILABLE SPACE
MEDIA SELECTION
EVALUATION
FEEDBACK

6.2 Programme planning

Time	Content/Commentary	Sound and source	Supplementary material	Production notes	Pupil activity

286

287

EVALUATION OF SOUND PROGRAMME

EVALUATE THE SOUND RECORDINGS IN YOUR GROUP USING THE FOLLOWING FIVE-POINT SCALE:

5. Excellent
4. Very good - no changes required
3. Good - few changes required
2. Fair - needs revision
1. Unsatisfactory - must be completely revised

		Recording 1. Title Subject Target group					Recording 2. Title Subject Target group					Recording 3. Title Subject Target group				
	CRITERIA															
1.	Objectives achieved															
2.	Integration of medium in presentation															
3.	Planning and progression of programme.															
4.	How successful was the medium?															
5.	Suitability of presentation for target group															
6.	Pupil involvement															
7.	Teaching techniques used															
8.	Initiative shown															
9.	Technical quality, e.g. sound quality															
10.	Duration of programme															

Choose the best recording in your group and use it for report back.

EVALUATION OF SOUND RECORDING LECTURE

HAVE THE AIMS BEEN ACHIEVED?

Will you be able to give guidance in ....

	AIMS		
1.	the selection of sound recordings as medium and the educational use of sound recording?		
2.	the planning and making of a sound recording?		
3.	using and maintaining audio equipment with confidence?		
4.	making sound recordings at school?		
5.	distinguishing between good and poor technical and educational quality of programmes?		

Recommendations:

Please hand this form to your group leader before leaving.

-BRONNELYS / SOURCE LIST

BINGHAM, K 1983 The Usborne cassette recorder book. London: Usborne.

BROWN, J W LEWIS, R B & HARCLEROAD, F F 1983 AV instruction technology, media and methods. New York: McGraw-Hill.

GROBLER, P J 1982 Die bandopnemer in die praktyk. Kaapstad: Maskew Miller.

KEMP, J E 1980 Planning and producing audiovisual materials. 4th ed. New York: Harper & Row.

KRUSE, M 19- Vrolike bandopnamegids. Berlyn: BASF.

KRUSE, M 19- Tape manual. Berlin: BASF.

MACQUARIE UNIVERSITY 1978 Producing educational audio tapes. Sydney: Macquarie University.

WITTICH, W A & SCHULLER, C F 1979 Instructional technology its nature and use. 6th ed. New York: Harper & Row.

ANNEXURE TO LECTURE 7

6.2 Programme planning

(1)

EXAMPLE

Time	Content/Commentary	Sound and source	Supplementary material	Production notes	Pupil activity
20 Sec.	Children playing, light traffic in background.	GR 105, side 1.		Sound for 20 seconds to permit adjustment of earphones. Fade to soft background after 20 sec.	Listen to recording.
± 10 Sec.	Listen closely to the recording and complete your worksheet.	GR 105, side 1.	Worksheet.	Children playing softly in background. Louder at end of assignment.	Listen to recording.
± 30 Sec.	Children playing + ball being kicked and bouncing.	GR 105, side 1. Own recording of soccer ball being kicked and bouncing.		Pre-record sound of ball. Fade children playing.	Listen to recording.

6.2 Programme planning (2)

Time	Content/Commentary	Sound and source	Supplementary material	Production notes	Pupil activity
5 Sec.	Ball bounces: Running feet.	GR 101, side 1; band 8.		Footsteps and ball louder.	Listen to tape.
20 Sec.	Vehicle approaches and hits pedestrian. Scream.	GR 104, side 2; band 1 : 7. GR 101, side 1, band 1.			Listen to tape.
10 Sec.	Confused voices talking.	GR 102, side 2, band 2.		Talking fades	Listen to tape.

6.2 Programme planning

(3)

Time	Content/Commentary	Sound and source	Supplementary material	Production notes	Pupil activity
	Ambulance approaches, stops, talking louder.	GR 99. side 2; band 5 : a.		Fade sound.	
20 Sec.	Ambulance leaves.	GR 99 side 2; band 5 : C.			
	Answer questions on worksheet using the available reference material.		Pamphlets and brochures on Road Safety.	Answer questions on worksheet.	
10 Sec.	Switch tape recorder off.				

WORKSHEET

1. You are a reporter for the local newspaper. Write a report on what happened for publication in the next issue.

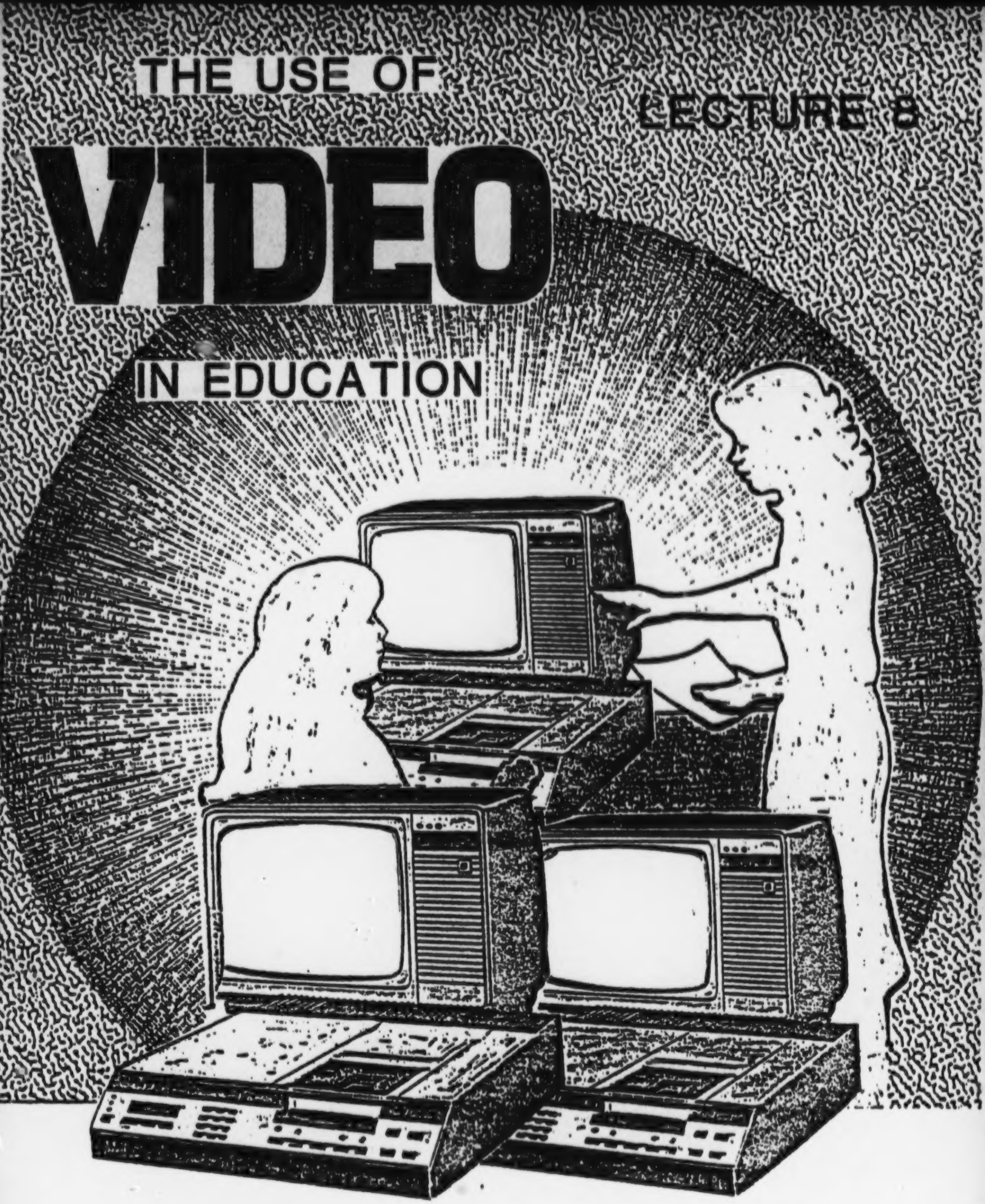
2. How could the accident have been prevented?

3. Use the available reference material to determine
   (a) What the responsibility of the children was.

   (b) What the motorists' responsibility was.

THE USE OF VIDEO IN EDUCATION

LECTURE 8



TRANSVAALSE ONDERWYSDEPARTEMENT
TRANSVAAL EDUCATION DEPARTMENT

ORIËNTERINGSKURSUS: ONDERWYSMEDIA
ORIENTATION COURSE: EDUCATIONAL MEDIA
1984

8. VIDEO IN EDUCATION

Mr E S J van Graan
Senior Adviser.
Education Media Service

OBJECTIVE

To introduce those attending the course to television and video in general and more specifically to the use of video in teaching/education

CONTENTS

1. INTRODUCTION

2. KINDS OF TELEVISION
    - 2.1 Television broadcasting
    - 2.2 Cable television
    - 2.3 Closed circuit television

3. VIDEO
    - 3.1 Video systems
    - 3.2 Video formats

4. TELEVISION AND VIDEO IN EDUCATION/TEACHING
    - 4.1 Television broadcasting
    - 4.2 Video

5. USING VIDEO IN EDUCATION/TEACHING
    - 5.1 Media selection a priority
    - 5.2 Unique qualities of video
    - 5.3 Video as teaching medium/educational medium
    - 5.4 Evaluating video programmes
    - 5.5 Acquisition and organisation of video programmes
    - 5.6 Installing equipment and placing the audience

6. HANDLING AND USING THE VIDEO SYSTEM

7. BIBLIOGRAPHY

8. VIDEO IN EDUCATION

1. INTRODUCTION

The word 'video' has its origin in the Latin word 'video' which means 'I see'. The word 'television' again, is a compound made from the Greek word 'tele' which means 'across a distance' and the Latin word 'video' which became 'vision', so that the literal meaning is actually, 'I see across a distance'.

Television was discovered long before present-day video and words such as television, television screen and television image are therefore familiar. Recent technological developments, such as the video cassette tape and the video cassette recorder for which the television screen is utilized, have led to terminological confusion. We often find references to television in education when the term video is meant, or to closed circuit television when a video system is intended. A video image is also usually shown on a television screen.

Before we discuss the value and role of video in education it is, therefore, necessary to define what video is as well as to define its place in the electronic_images systems. For this reason familiar transmission means are discussed briefly.

2. TYPES OF TELEVISION

2.1 Television broadcasting (direct transmission)

Viewers of television are all familiar with the principles of direct broadcasting. A broadcasting station transmits signals from a tall transmission antenna. Signals are transmitted through space to many receiver sets which receive the signals through an antenna. Signals are converted to image and sound on the television set.

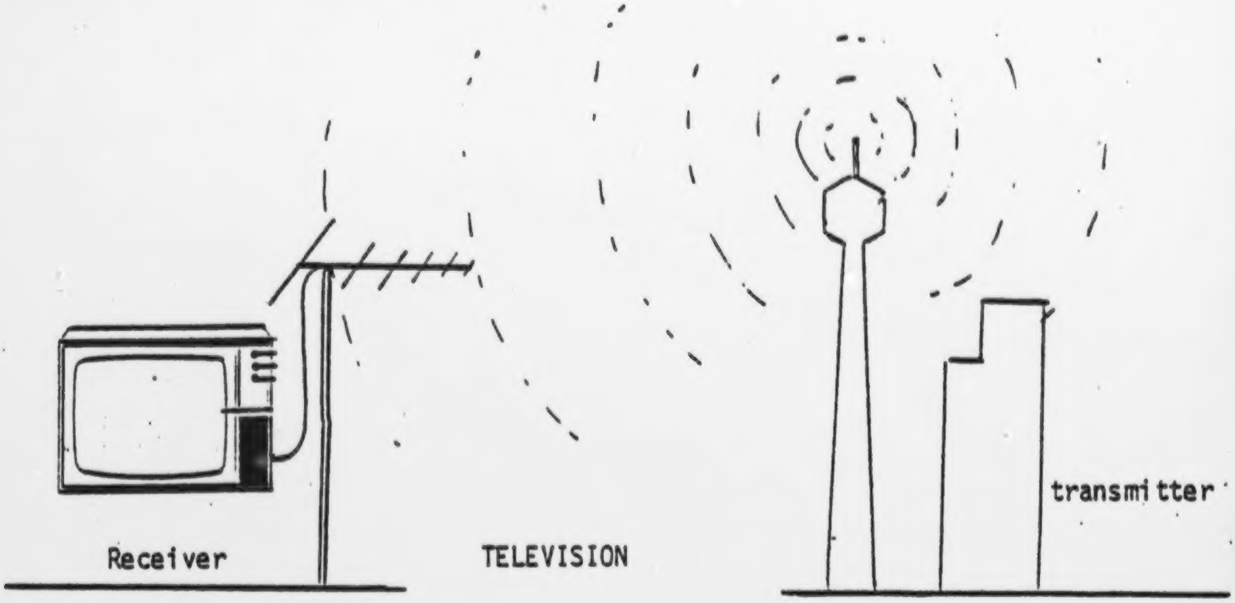
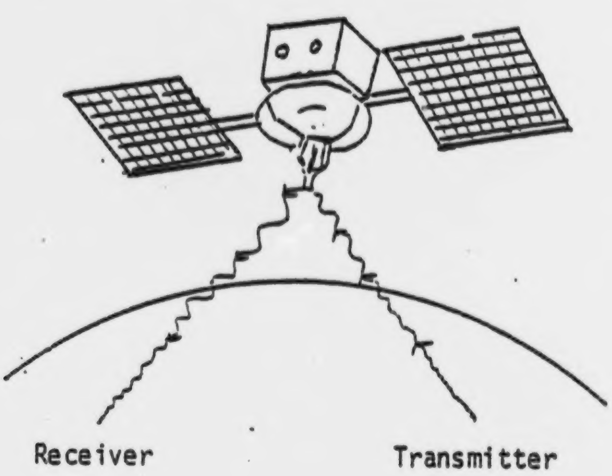

Receiver
TELEVISION
transmitter

DIAGRAM 1

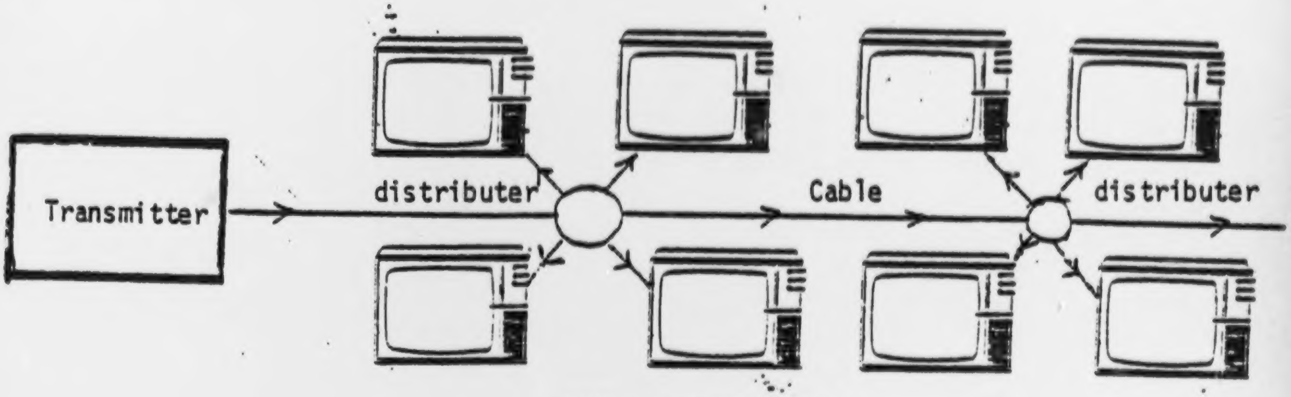
Broadcasts of this nature may be transmitted across fairly great distances, and communication satellites in space are used to reflect or bounce signals past the curve of the earth.


Receiver
Transmitter

Recent technological developments have enabled users at home as well as organisations and institutions to receive direct broadcasts via a communications satellite with the further possibility of two-way communication. This has great significance for educational use.

2.2 Cable television

Cable television is already an institution in some countries in Europe. Broadcasting and receiving equipment are used as with television broadcasting, but the broadcaster and receiver are connected through an electric cable which carries the signal. This does not entail any transmission through space.



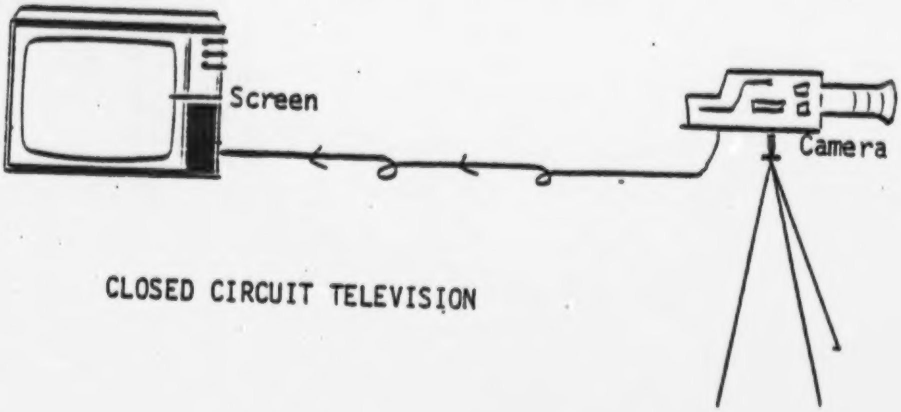
CABLE TELEVISION

DIAGRAM 2

Cable television is by its very nature suited to large urban centres, but becomes impractical for widely scattered viewers because of the cable connection.

2.3 Closed circuit television

Cable television as it has been described here, is a closed system because reception of broadcasts is limited to a 'closed' group. In practice a closed circuit system as used at, for instance universities and colleges, usually consists of a system with a television camera at the transmission point and a television screen at the receiver point with a cable connecting transmitter and receiver.



CLOSED CIRCUIT TELEVISION

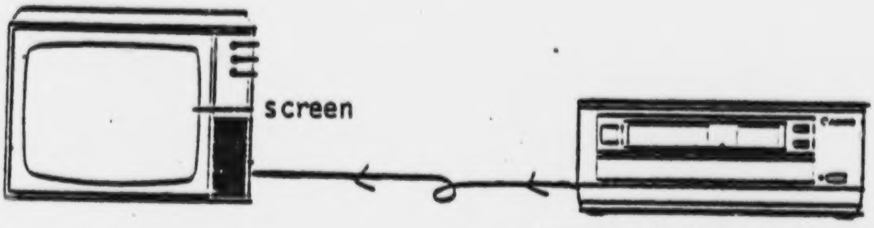
DIAGRAM 3

3. VIDEO

3.1 Video systems

Although the word 'video' really means 'I see', it is commonly used for a system in which a pre-recorded programme on a video cassette may be played back on a video cassette player. Video cassettes which are used with a video cassette recorder and playback unit, are generally considered as a medium for recreation and entertainment at home.

VIDEO



VIDEO CASSETTE RECORDER

DIAGRAM 4

Image and sound are recorded on a tape in cassette format which facilitates handling and use a good deal, while at the same time offering sufficient protection to the tape inside the cassette holder. The similarity between the video cassette and its recorder and the audio cassette and its recorder has ensured minimum user resistance to video. According to estimates about 40% of the white homes in the RSA already have video cassette recorders, while in 1986 an estimated 50% in Britain, in 1987 50% in Japan and in 1993, 50% in the USA, will possess video cassette recorders (Bates, 1984 : E.T.A. Conference).

3.1.2 Video discs

Video discs are less well known, but are already available. The system consists of a video record player and television screen connected with a cord. Video records resembling ordinary long-playing grammophone records, carry the image and soundtrack.

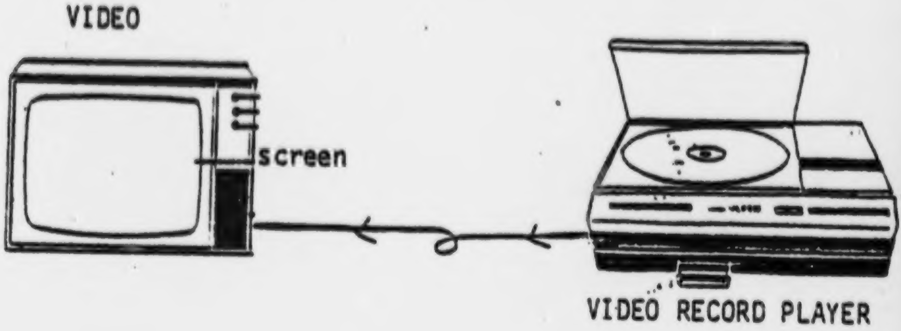


DIAGRAM 5

The records differ from the video tapes in that recordings cannot be made by the layman. Producing video discs may be compared to producing long-playing grammophone records, in that highly specialized equipment is called for and the process is therefore expensive; unit costs are brought down through the mass production of copies from the master recording.

3.2 Video formats

Besides the differences in length of time which depend on the length of the tape, there are also differences in size and form. The most fundamental difference is found in the width of the tape. The well-known widths are ¾ inch (also called the U-matic), a variety of ½ inch formats (V H S and Beta) and the 8 mm format which may become popular for home use for economic reasons and is expected to reach the South African market by 1985. Video cassette recorders and players are designed to take video cassette tapes of a certain format only, i.e. U-matic cassettes may be played with U-matic apparatus equipment only, V H S cassettes with V H S equipment and Beta cassettes with Beta equipment.

At present the ½ inch format is very popular for home use because the quality of the image obtained is good and retail prices for ½ inch equipment and ½ inch video cassettes are considerably lower than for the ¾ inch format. The ¾ inch format is essential to production studios because the quality of the image obtained in duplicating is better, a characteristic important both in editing and copying programmes.

4. TELEVISION AND VIDEO IN EDUCATION

Different types of transmission have been utilized in education overseas with varying degrees of success. Large sums have been spent on cable television, closed circuit television and live broadcasting for schools. The development of the present video system has opened up new avenues for education.

For education in South Africa only television broadcasting and video systems are relevant and further discussion is limited to these.

4.1 Television broadcasting (Direct transmission)

A wide variety of valuable educational programmes may be transmitted directly for use in teaching.

4.1.1 Advantages of direct transmission

- A large audience may be reached simultaneously.
- Programmes of high technical quality are used.
- Programmes may serve an important educational function.
- Programmes are outstandingly successful in forming and changing attitudes.
- News and topical events may be transmitted live, rapidly and effectively.
- It is functional in the classroom if educational programmes may be recorded from the air, if the video cassettes are afterwards taken into stock and organized in the media centre so that the material is available for use when needed as integrated part of a lesson. Copyright concessions for recording educational programmes produced by the Department for Educational Television in Afrikaans and English, at SABC, off the air, are being negotiated.

4.1.2 Disadvantages of direct transmission

- Programmes have set times for transmission which may not suit all schools in the receiving area.
- A programme cannot be interrupted, but must be utilized as a complete programme.
- The pace of the presentation cannot be varied to differentiate between needs.
- Transmission of a programme cannot be repeated, unless it is recorded off the air on video cassettes or unless transmission is repeated.

4.2 Video

4.2.1 Advantages

- A collection of video programmes on cassettes can be built up, organized and made available in the media centre for use when called for; this includes programmes recorded off the air or purchased.

- Teachers may study the programme contents beforehand and plan integration of programmes with the presentation of a lesson effectively; they may also determine a suitable time for the use of the programme themselves.
- Programmes may be interrupted and switched on again, according to need.
- Programmes may also be repeated as a whole.
- Sections of a programme may be repeated.
- Frames may be frozen to show one image if necessary.
- Frame by frame movement, backwards or forwards, is possible at a varied pace.
- Specific images may be found with the speeded up scanning facility.
- It provides a good moving colour image of real life, with sound track.
- Video cassettes are easy to use and may be re-used. New recordings may be made on used cassettes, as in the case of sound cassettes.
- Very little darkening of the room is called for.

4.2.2 Disadvantanges

- The medium is expensive and is chiefly for use in small groups.
- Repeated duplication of programmes does lead to loss of quality of image.
- The image is relatively small, with poor resolution value.
- The unprepared teacher may be inclined to use video

programmes as a handy short cut at the expense of effective teaching.

- Because it is so often considered a 'super medium', the principles of media selection are readily neglected.
- The equipment is sophisticated. Training for use is required nor can it be moved around at will.

5. USE OF VIDEO IN EDUCATION

5.1 Media selection: a priority

Video cannot replace the teacher, but may be put to use purposefully and designedly as an integral part of the lesson. Video cannot replace other educational media such as transparencies, slides, filmstrips and sound recordings. It may, however, be selected for its unique qualities as the most suitable medium for a specific aspect or objective in a lesson.

5.2 Characteristics unique to video

5.2.1 Video is an audio-visual medium which portrays movement and which can, therefore, convey reality in a unique way, e.g. by

- demonstrating continuous activity and skills;
- elucidating situations involving movement;
- making objects which are too small or which move too rapidly for normal observation visible;
- communicating that which is abstract, obscure or theoretical; and
- portraying a sequence of logical actions or changes which are taking place.

5.2.2 With the guidance of the teacher, video may offer pupils a significant emotional experience, may stimulate their creative thinking and encourage pupil participation.

5.2.3 The video cassette player offers unique possibilities for use through its facility to freeze a frame, advance or retrace frame by frame, and speed up both forward and backwards. Concepts may be inculcated and illustrated, and more effective teaching and learning ensured in a unique way.

5.2.4 Some video cassette players have a second soundtrack which may be used to involve pupils through assignments, or even to provide the teacher with a soundtrack for his own comments for domestic use only. This may be essential in the case of a foreign video programme needing a measure of explanation or adaptation.

5.3 Video as an educational medium

5.3.1 Video programmes

Video programmes may be used in part or as a whole, depending on the lesson planning and the contents of the programme. A short programme (10 - 15 min) on a specific subject or theme may be used as a whole; a longer programme (e.g. documentary films in video format) may be scrutinized and sections or cuts which are useful, selected. Sometimes the video may be used in its entirety. Complete programmes or sections may be used to teach a whole class or a group of pupils in many different ways.

5.3.2 Excerpts or sections from video programmes would be useful

- for the use of video with other media;
- to teach groups;
- to convey single concepts through continuous action and other techniques;
- to portray motor skills, and to ensure repetition, should this become necessary for consolidation

- to portray movement realistically;
- to depict details not normally observable; and
- to present diagrams and movement effectively.

5.3.3 Complete video programmes may be used as an introduction to a lesson, or to consolidate. These complete programmes may involve a group of pupils emotionally, and prove highly successful in

- forming attitudes;
- stimulating thinking to facilitate follow up;
- involving pupils through group discussion and the completion of worksheets.

Should the aim be to use a complete programme with a group in a situation in which a thorough grasp of principles is essential to learning, the teacher should remember that

- individual needs are subordinate to group needs;
- the pace of the presentation may not be equally suited to all pupils;
- interruptions may bother some pupils;
- opportunities should be provided for the effective learning of individual pupils on their own. They should be able to study the programme, repeat sections and adapt the pace to suit themselves.

5.3.4 Educational video programmes

Educational television is familiar overseas and some of the available programmes in video format have reached the local market. These video programmes do not meet local syllabus needs and their use is limited.

Educational television or video porgrammes differ in many respects from ordinary television or video programmes. Educational programmes are typified by the following characteristics:

(1) Objectives are clear.

(2) Target groups are clearly identified.

(3) The structure of the programme does not adversely affect the subject content.

(4) The programme appeals to the target group.

(5) The viewers are enabled to achieve the formulated goals.

(6) Continuity is built into programmes by presenting them in series. Each programme is linked with the previous one by a short repetition and concludes with a short summary.

(7) The programme does not replace the teacher and can be used innovatively by the teacher in many ways.

It is clear that the production of an educational television or video programme demands great expertise from the subject specialists, the script writer and the producer. In the planning stages of an educational television or video programme, the following aspects should receive attention:

- A needs assessment of the child/learner and his community.
- The stage of development of the child/learner.
- Involvement of experts, eg. teachers/educators/ trainers to collaborate during the planning stages.
- Compiling work sheets to ascertain what the pupils already know, in order to determine whether the target group is ready.
- The use of other direct or dramatised experiences, demonstrations and other relevant educational media.
- Learning by making use of all the senses, such as sight, hearing, taste, smell and touch.

- The use of fundamental forms by which children learn, e.g. playing, conversation, following instructions and examples.
- The training of teachers in order to utilise all potential opportunities to form conversation groups or issue instructions.
- Designing multi-media packages, such as printed media, posters, slide-sound programmes, transparencies and other media, supplementary to the programme in order to extend it and also to provide enrichment material for differentiation and individualisation.
- The use of the educational medium in the home language.
- Availability in video format in order to enable the slower learners or the more gifted ones to use it more often as their individual needs dictate.
- The possibility of repeating parts of the content so that learners can repeat those parts that need to be practised or memorised.
- Training of teachers by in-service and further training to ensure optimal utilization of the medium.
- Provision for all levels of cognitive learning. This means provision not only for memorising but also opportunities for the application of knowledge, analysis, synthesis and evaluation, as well as the development of divergent thought relevant to group discussions after viewing a video programme
- Developing strong affective values, such as moral and religious values.
- Stimulating creativity, together with cognitive, affective and psycho-motor development.
- Provision for formative and summative evaluation in collaboration with several experts with the objective of future improvement (Adapted from HSRC, 1983:73-76).

5.4 Evaluation of video programmes

For the evaluation of video programmes the practical work on the next page will suffice.

WORKSHOP: Select a video programme and determine through the given questions whether the programme fulfills any of the functions mentioned in the columns.

Use ✓ or X

EVALUATION OF VIDEO PROGRAMMES

Title.......... Core or central concept or learning objectives.......... Target group.......... Contents..........	Teaching - learning	Atmosphere	Stimulation	Consolidation	Single concept
1. Duration of time acceptable?					▨
2. Programme unique to video as medium?					
3. Programme uncomplicated?					░
4. Is repetition meaningful?		▨	▨		▨
5. Pace suitable?					▨
6. Printed matter such as worksheets provided?					▨
7. Are images and commentary well integrated?					
8. Suitable for use in teaching and learning?		░	░		
9. Information adequate?)*Also see Lecture 4,*					
10. Information correct?)*Annexure III for*					
11. Information updated?)*criteria for evaluation*					
12. Full use made of screen potential?					
13. Effective use of camera techniques?					
14. Photography successful, particularly close-ups?					
15. Shortcomings or weaknesses in programme?					▨
16. Course of programme satisfactory?					▨
17. Does it hold attention?	░			░	▨
18. Is there emotional involvement?	▨			▨	▨
19. Does it form or change attitudes?	░			░	▨
20. Use of music effective?	░			░	▨
21. Use of sound effects effective?					
22. Use of colour effective?					
23. Is the programme open-ended?					▨
24. Is the approach objective?					
25. Does it call for reaction diverting attention from the screen?					▨
26. Does the personality of the presenter contribute or detract from the programme's success?					░
27. Are the presenter's tone and quality of voice acceptable?					
28. Does the programme stimulate thinking and discussion?					░

5.5 Acquisition and organization of video programmes

Programmes may be bought, borrowed or hired. recordings of television broadcasts may be made or programmes may be produced.

5.5.1 Producing programmes

Producing programmes calls for money, time, skill and an aptitude for planning programmes and handling equipment. Production is a problematic field to the inexperienced and should not to be attempted without the necessary training.

> *"Youngsters who are spoiled by having access to first-class shows in their leisure time will frown on I T V programs that are considerably under the technical standard of such shows. By this I do not mean that we need all the money, personnel, and technical facilities that go into the production of a commercial show that draws big crowds of viewers. Instructional programs are normally smaller in their format, but within that format they should be professional. The technical facilities used should be the same as in general television, good actors used whenever possible, etc. After all, there is a constant (unintentional) competition for the interest of the audience between what they come across in their leisure time and what they have to work with in school hours."*
> (Schram : 1972, p 7)

Video is a sophisticated medium and schools are advised not to buy expensive video cameras with a view to making their own productions. Funds may be invested more wisely in acquiring monitors with big television screens and video replay units to equip classrooms for video use.

5.5.2 Recording television programmes

According to Article 18 of the Copyright Act, 1978 (Act 98 of 1978), it is illegal to record any SABC programme for one's own use, until the copyright has been granted.

5.5.3 Loan of video programmes

Only approved educational programmes may be used for projection during school hours. Video programmes may not be loaned or hired for use in the classroom.

The Film library of the Section : Educational Technology, of the Department of National Education, plans to make video cassette tapes available in future for loan or purchase. A questionnaire has already been sent to schools on which teachers are required to indicate which films should also be available on cassette tape.

5.5.4 Acquisition

Video programmes which have been produced locally to meet syllabus needs, are extremely scarce. Video programmes commercially available are expensive and quality varies. It is Departmental policy that all video programmes should be submitted to the Educational Media Service for evaluation before acquisition. Useful programmes may also be discovered in this way for Media Guide listing. Schools may then borrow these from the Education Library for viewing before deciding on acquisition.

5.6 Organisation of video hardware and software

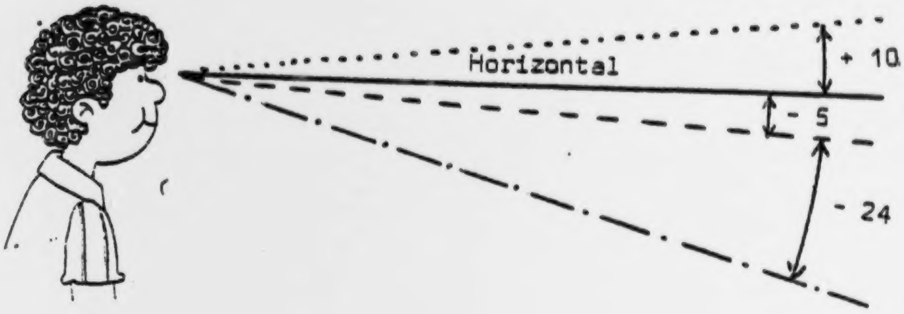
Procedure for organising the video hardware and software is to be found in the revised Information Guide no 8 : Procedure for the Administration of the Media Centre, to be sent to schools shortly. In the meantime video systems (VS) are to be written into the stock register in the usual way and video cassettes (VI) are for the time being to be organised in plastic bags in hanging files as with transparency sets.

5.7 Installing equipment and placing the audience

5.7.1 Installing equipment

The most important consideration when installing equipment is to ensure that every viewer will be able to see the image comfortably.

Because the height of the screen is another important factor in the use of video equipment, the following guide is provided:



———————— Horizontal line
- - - - - - - - - - Line indicating optimum screen height
· · · · · · · · · · Line indicating maximum screen height
— · — · — Line indicating minimum screen height

Each line indicates the height of the focal point of the screen. (Moldstad, J : adapted)

Other factors to be considered in installing equipment:

- Reflection of light on screen should be avoided.
- The room should not be completely dark.
- Hardware should be placed on a sturdy trolley.
- For permanent installation in teaching areas, adjustable but sturdy brackets should be used.

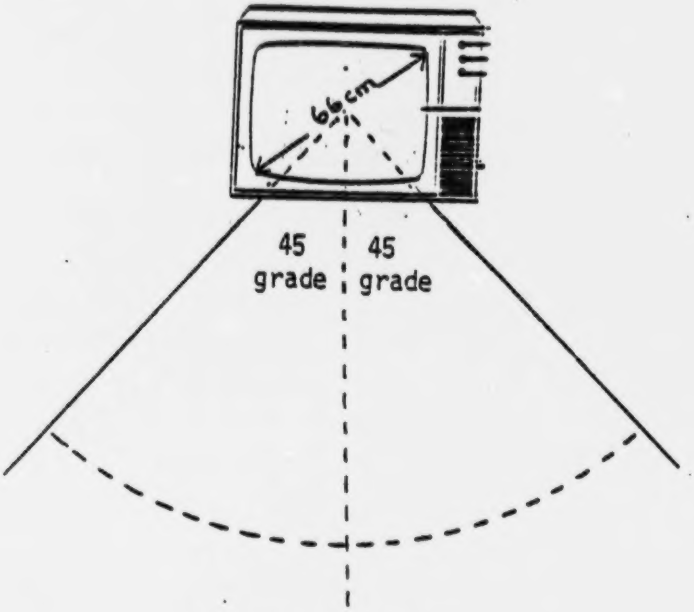
5.7.2 Placing the audience

To limit eye strain the folowing guide may be used:

- Estimate the number of monitors required as follows:

  $$\text{Number of viewers} = \frac{\text{Diagonal across screen}}{3} \quad (\text{add} \pm 5)$$

  It is recognized that for clear vision the angle should not exceed 45 degrees.



Number of viewers

$$\frac{66}{3} = 22 \quad (\text{add} \pm 5)$$

- Minimum distance from screen is estimated by using the formula

  4 W (W = width of screen).

  This means the viewer nearest to a 66 cm screen should be placed 2,40 m from the screen.

- The optimum viewing distance is 6,5 W.

- The maximum viewing distance will depend on the visibility of details in the image. The viewer is still within the limits of maximum viewing distance if the components of the image are clearly distinguishable. (Moldstad, J : adapted)

5.7.3 Using more screens

Teaching areas are often equipped with two video screens carrying the same image simultaneously. The economic advantage of this is clear from the formula:

$$\underline{\text{Number of viewers}} = \frac{\text{Diagonal across screen}}{3} \quad (\text{add} \pm 5)$$

The use of two screens with a diagonal of 51 cm each would accommodate a total of 17 X 2 = 34 (plus 8 to 10) pupils. In contrast to this a single 'big' screen (66 cm) would accommodate 22 (plus 4 to 5) pupils only. Two of the 66 cm screens, of course, can accommodate 44 (plus 8 to 10) pupils. For an audience filling a hall, it would be advisable to use a video projector.

6. HANDLING AND USING A VIDEO SYSTEM

6.1 Handling and care

A video system is expensive and sophisticated equipment and it should be handled, used and housed with extra care.

6.1.1 Video hardware

- Video hardware provided to schools is not portable, should be housed in the media centre and may not be moved from room to room.
- The system comprises a video cassette player and television set and must be mounted and used on a trolley.

- The video system should, if possible, be safely housed in a place free of dust or dampness of any kind.
- The dust cover should be removed during use to provide sufficient ventilation, but must be replaced as soon as possible after use.
- Plugs and antenna should be disconnected after use to prevent damage by lightning.
- Electric cords and connections should be placed so that there is no danger of people tripping over them.

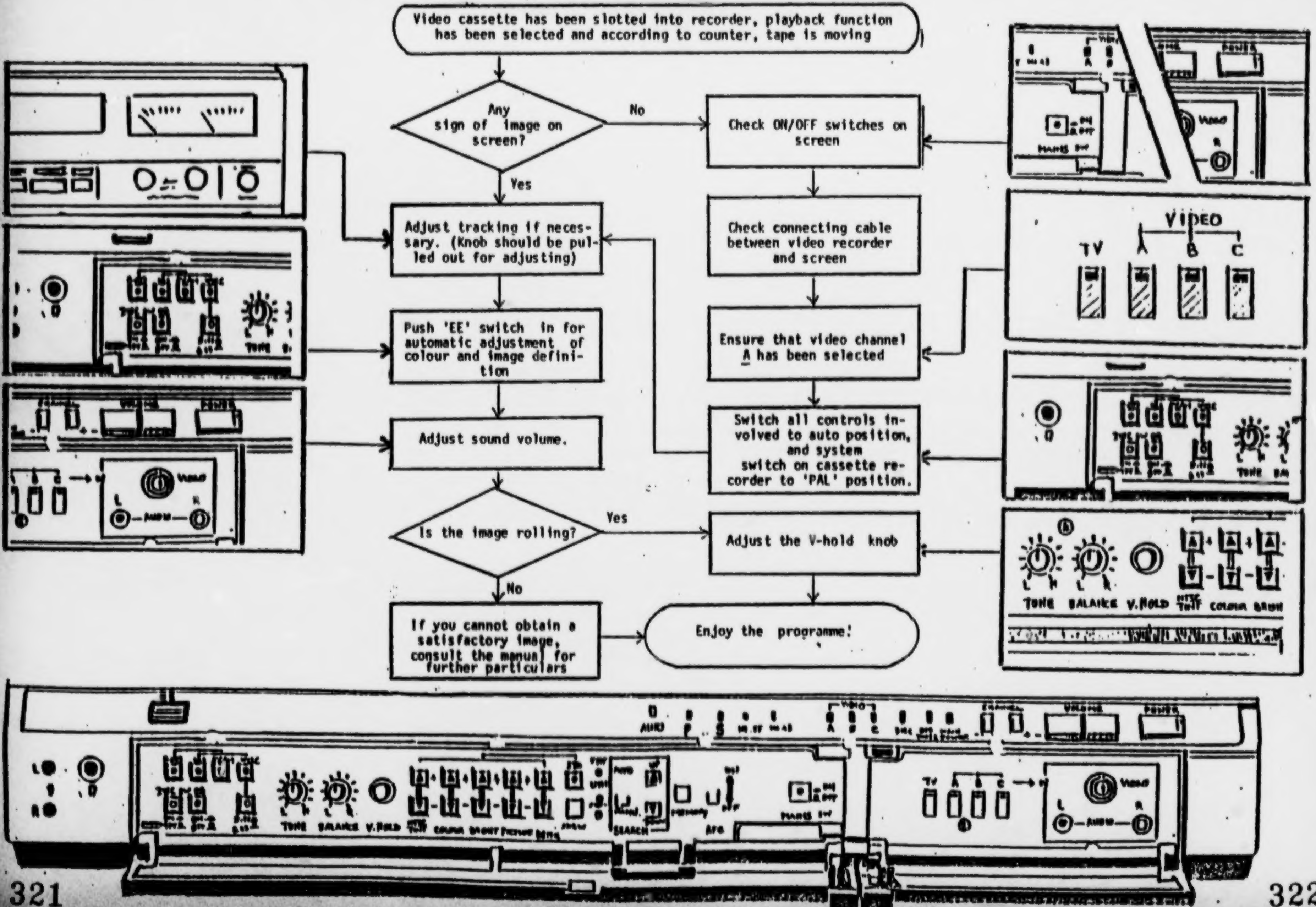
6.1.2 Video cassettes

- Video cassettes should always be returned to containers after use.
- Cassettes should be protected from dust and must not be left lying around.
- Cassettes may never be left in the recorder.
- Water or dampness can damage the cassettes.
- Cassettes should never be forced into the recorder.
- Don't place heavy objects such as books on top of cassettes.
- Avoid strong electric or magnetic fields.

6.2 Use of video system

For the safe and effective use of the video system, all users should be thoroughly familiar with the hardware. The cassette accompanying the set must be carefully studied. For all problems encountered, try the manual first. For this reason we provide a flow diagram only (p 22) on the handling of problems which may occur.

HANDLING THE VIDEO CASSETTE RECORDER



Video cassette has been slotted into recorder, playback function has been selected and according to counter, tape is moving

Any sign of image on screen?

No → Check ON/OFF switches on screen

Check connecting cable between video recorder and screen

Ensure that video channel A has been selected

Switch all controls involved to auto position, and system switch on cassette recorder to 'PAL' position.

Yes → Adjust tracking if necessary. (Knob should be pulled out for adjusting)

Push 'EE' switch in for automatic adjustment of colour and image definition

Adjust sound volume.

Is the image rolling?

Yes → Adjust the V-hold knob

No → If you cannot obtain a satisfactory image, consult the manual for further particulars

Enjoy the programme!

7. BIBLIOGRAPHY

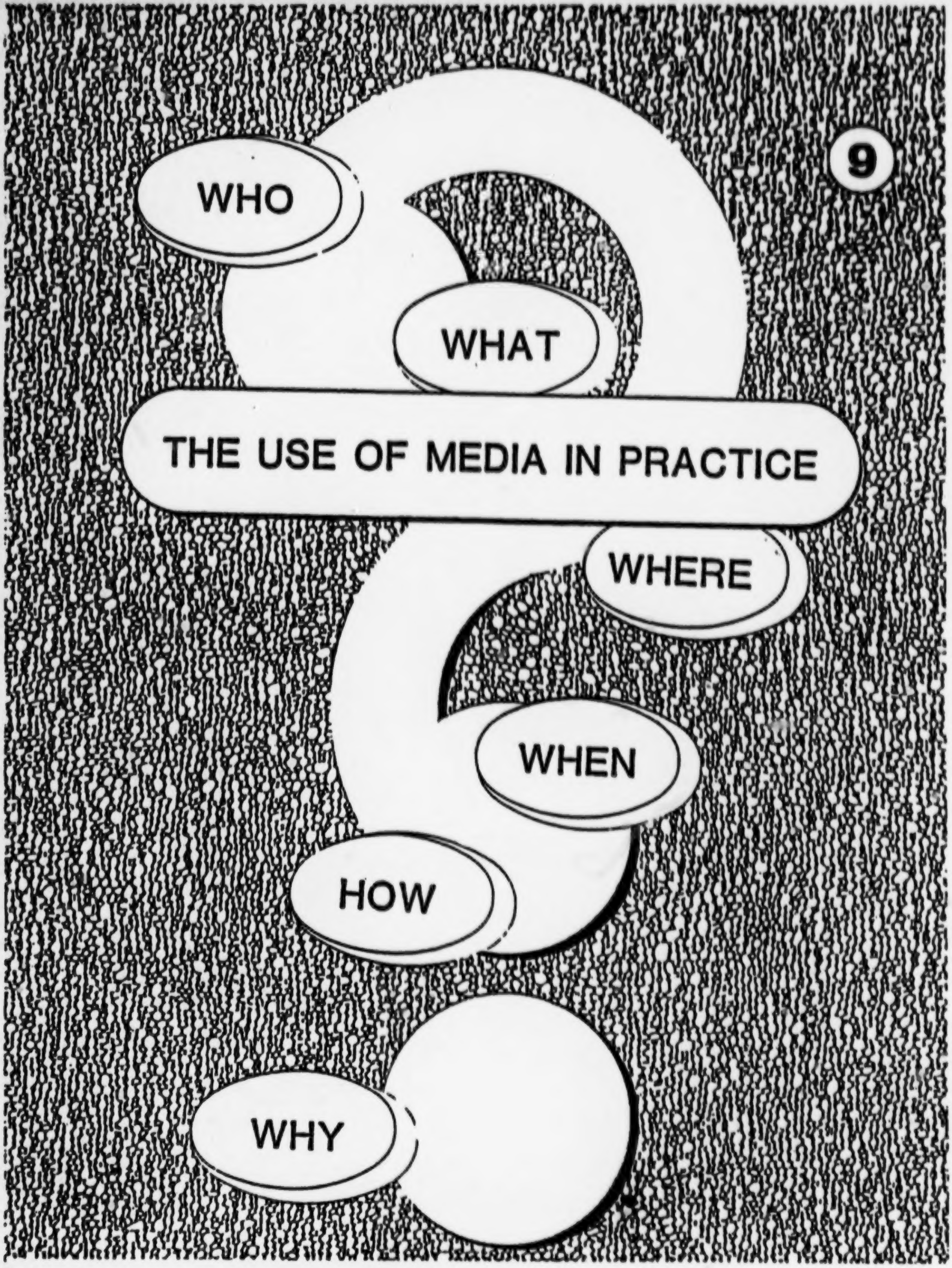
ORANOV, P e.a. 1980 Video in the 80s. New York, Knowledge Industry Publications.

JONASSEN, D H 1982 Nonbook Media. Hamden, Connecticut, Library Professional Publications.

MACQUARIE UNIVERSITY. Centre for Advancement of Teaching. 1978 Video in Instruction. Sydney, Macquarie University (Minicourse M20).

NAVAC. 1980 Audiovisual Handbook. London, Kogan Page.

RAAD VIR GEESTESWETENSKAPLIKE NAVORSING. 1983 Subkomitee: 'n Ondersoek na die gebruik van die radio en televisie en ander inligtingstelsels soos BELTEL vir die bevordering van onderrig en leer. Verslag (projek V002/9). Pretoria, R G N.


9
WHO
WHAT
WHERE
WHEN
HOW
WHY

THE USE OF MEDIA IN PRACTICE

TRANSVAALSE ONDERWYSDEPARTEMENT
TRANSVAAL EDUCATION DEPARTMENT

ORIËNTERINGSKURSUS: ONDERWYSMEDIA
ORIENTATION COURSE: EDUCATIONAL MEDIA
1984

324

9. THE USE OF MEDIA IN PRACTICE

Senior Advisers: Miss J C Pretorius
Miss M J Simon

AIMS

At the end of this lecture course members should have an understanding of what effective use of media implies and how it can be applied in practice.

1. INTRODUCTION, 1

2. THE USE OF MEDIA IN PRACTICE, 1

    2.1 Aims with the use of media, 2
    2.2 Staff and pupil involvement, 2
    2.3 The use of media in the media centre and in the classroom, 3

3. STOCK-BUILDING, 4

    3.1 Functional stock is essential, 4
    3.2 Guidelines for effective stock-building, 5

4. THE USE OF MEDIA WITH SPECIFIC REFERENCE TO ASSIGNMENTS, 10

    4.1 Media user guidance and subject media use, 10
    4.2 Assignments, 11
    4.3 Purpose and nature of assignments, 12
    4.4 Presentation of assignments, 12
    4.5 Practical work, 14
    4.6 Guidelines for assignments to pupils, 14
    4.7 Evaluation of assignments, 17

5. WORKSHOP, 18

    5.1 Lesson planning, 18
    5.2 Evaluation, 20

6. SUMMARY, 20

7. BIBLIOGRAPHY, 21

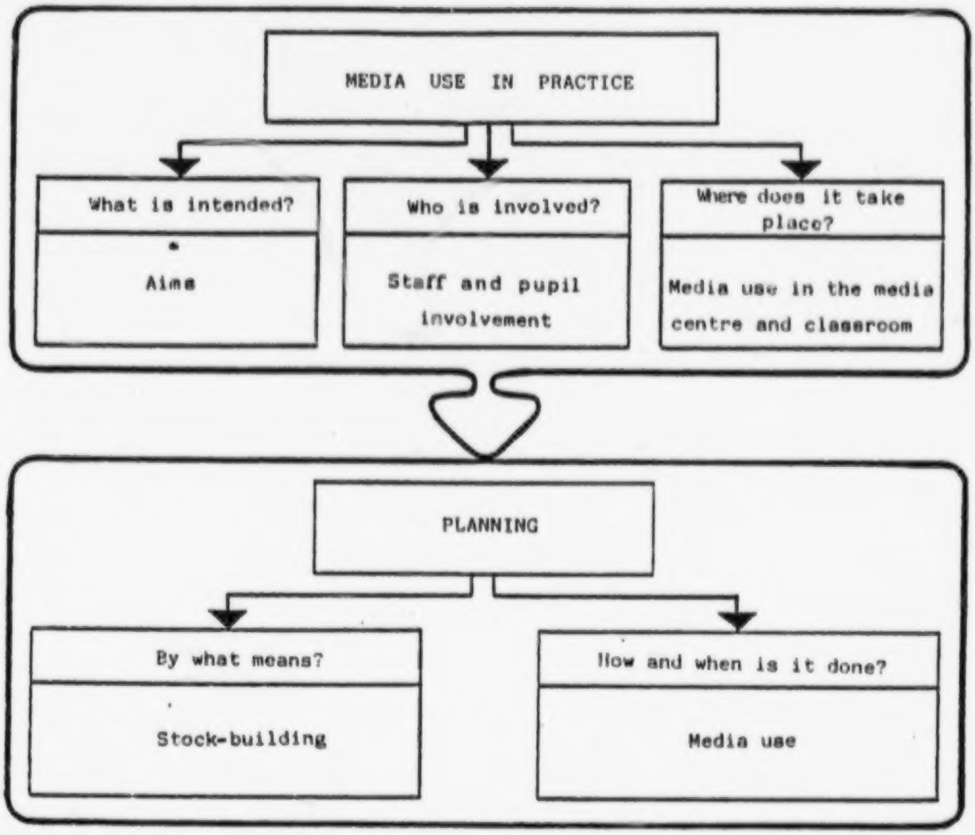
1. INTRODUCTION

The previous lectures referred repeatedly to those media skills that have to be mastered to ensure effective media use:

- Skills the teacher must possess to select media, to use them with confidence in the classroom and to produce software himself, i.e. the use of media for teaching;
- Skills that the pupil must master, i.e. the use of media for learning.

2. THE USE OF MEDIA IN PRACTICE

The use of media requires good planning. If the following information is kept in mind all aspects can be covered;



MEDIA USE IN PRACTICE
What is intended?
Aims
Who is involved?
Staff and pupil involvement
Where does it take place?
Media use in the media centre and classroom
PLANNING
By what means?
Stock-building
How and when is it done?
Media use

Diagram 1: Diagram for media use

The first three aspects will be dealt with briefly while the stock in the media centre and purposeful, planned use of media will be discussed in more detail.

2.1 Aims in the use of media

FROM: GENERAL AIMS	TO: SPECIFIC OBJECTIVES
° To provide a dynamic media service in support of and for the enrichment of the the curriculum.	° Building up a stock of various educational media in order to be able to provide media service.
° To advance the personal and mental development of all pupils to their full potential.	° Purposeful and motivated use of media, integrated with the educational programme
° Meaningful use of media by pupils who are equipped with the required skills.	° Handling and use of educational media in order to master the required skills needed in utilising communication media.

2.2 Staff and pupil involvement

The above objectives imply on the one hand a teacher(s) and on the other, a pupil(s) who is/are being guided. This function forms a part of every teacher's duty which means that all staff members as well as pupils are involved in media use, even if it does occur on different levels.

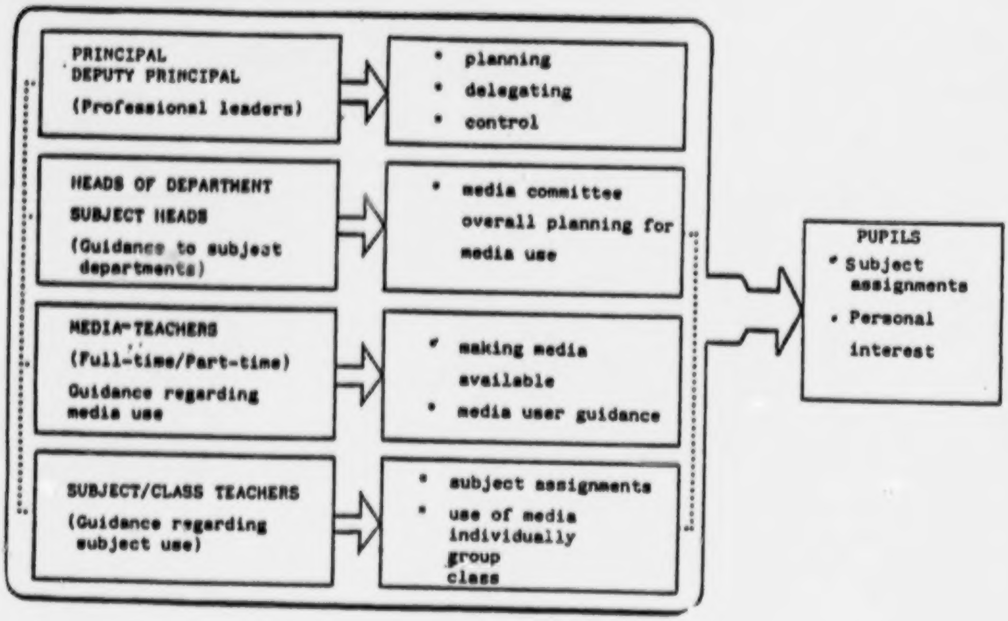

PRINCIPAL
DEPUTY PRINCIPAL
(Professional leaders)
planning
delegating
control
HEADS OF DEPARTMENT
SUBJECT HEADS
(Guidance to subject departments)
media committee
overall planning for media use
MEDIA-TEACHERS
(Full-time/Part-time)
Guidance regarding media use
making media available
media user guidance
SUBJECT/CLASS TEACHERS
(Guidance regarding subject use)
subject assignments
use of media
individually
group
class
PUPILS
Subject assignments
Personal interest

Diagram 2: Staff involvement

2.3 Use of media in the media centre and classroom

Very few schools do not have a media centre at their disposal; although all are not equally well-equipped, all are able to provide a media service to the teachers and pupils. One must remember that media use is not limited to the media centre but that it takes place mainly in the classroom.

MEDIA CENTRE	CLASSROOM
° Provides a media service to teachers and pupils.	° Block loans from media centre to supplement and enrich subject syllabuses.
° Accommodates and makes available a variety of printed and audio-visual media.	° Introduction to subject sources available in the media centre by means of reading lists, bibliographies, displays.
° Provides resources for use with subject assignments whether they be individual, for groups or in class context.	° Application of skills learnt in the media centre by means of subject assignments.
° Provides media for the personal requirements and interests of pupils.	

3. STOCK-BUILDING

3.1 Functional stock is essential

Lubans, as quoted by Coetzee, states: *"When teachers are aware of the large number of resources available:*

- ° *they are not likely to order everything in the catalogue;*
- ° *they become more critical of published resources and make positive suggestions regarding strengths and weaknesses of resources; and they begin to use the resources for instruction at an accelerated rate because they are familiar with the content of large numbers of purchased resources".*

The purpose of the media centre is to supply a limited but effective stock. In such a user-orientated supply there is no room for outdated, too advanced or too elementary sources.

If stock-building is applied systematically, a media centre acquires a character of its own which provides specifically for the media requirements of its teachers and pupils.

3.2 Guidelines for effective stock-builing

By using the following two diagrams subject stock-building can be carried out effectively. In this way, every teacher can participate in stock-building.

3.2.1 Survey of existing subject stock

SUBJECT: History

Subjects/Themes	Standards	Ready Reference	Non-fiction	Periodical articles	Pamphlets	Pictures	Transparencies	Slides	Filmstrips	Gramophone records	Cassettes	Other	Teachers' Reference
1. Voortrekkers	*6*	*2*	*4*	*2*	*3*	*6*	*2*		*1*	*1*			

Diagram 3: Quantity of subject stock (example)

N.B. By means of such a diagram, the number of sources available can thus be seen at a glance.

With the aid of this diagram

- ° the existing subject resources in the media centre are introduced, sifted and evaluated.
- ° balance and stock-building are facilitated.
- ° the teacher's interest in his subject is stimulated, his knowledge is extended and he becomes more inclined towards research.
- ° themes for differentiation are identified with greater ease.
- ° differentiation is facilitated, especially regarding the gifted child, since the teacher discovers themes outside the syllabus context but still within the field of his subject, which can inspire and motivate pupils for further study.
- ° aids, such as the Media Guide can be used purposefully in selecting media.
- ° definciencies in the stock can easily be identified and funds can be spent judiciously.
- ° themes can be identified which facilitates information retrieval by the media-teacher (media centre).

3.2.2 Survey and information retrieval

In diagram 4 bibliographic data of a specific type of media is ticked off, thus supplying a source list for finding the media needed for assignments by pupils.

The advantages of this diagram, in addition to the first, are the following:

- ° A source list on a particular subject/theme, which is used annually, is immediately available ready for use by pupils as well as teachers
- ° Finding the sources is easy, seeing that location numbers are available.

STANDARD: ..5.........

SUBJECT: General Science:Biology

THEME: The Grasshopper

			Books	Cassettes	Films	Filmstrips	Records	Multi-media	Periodicals	Pamphlets	Pictures	Slides	Trans-perencies
Author	Title	Location No.	B	CA	FI	FS	GR	MU	P/	PA	PI	SL	TR
De Villiers, W.M.	Sprinkane	595.7 DEV	✓										
Pereira, C.T.	Insects	595.7 PER	✓										
	Grasshoppers and locusts of Africa	SL430										✓	
	Groen sprinkaan	TR280											✓
	Locust life history	SL218										✓	

Diagram 4: Subject stock with location numbers (example)

3.2.3 Other aids

MEDIA GUIDE	COMMERCIAL CATALOGUES visits to booksellers, study of reviews
ADVANTAGES	ADVANTAGES
• Published without a motive for gain. • Media have been selected by specialists. • Comprehensive selection of books based on available sources. • No further approval required. • Can be bought directly. • Systematic arrangement facilitates use. • Catalogue cards available expedites accession to stock.	• Media are immediately available. • Can be examined before being bought. • Previews announce most recent media.
DISADVANTAGES	DISADVANTAGES
• New media may not be in stock yet. • Cannot always be examined by the teacher.	• Media are not always selected by experts. • Quotations delay purchasing. • Catalogue cards not available, therefore accession in media centre delayed. • Booksellers do selection themselves, and are strongly influenced by motive for gain.

One comes to the conclusion that stock should be selected and considered very carefully before being purchased. Every staff member involved in stock-building should answer the following questions before recommendations regarding purchases are made.

Does the need that has been identified justify the purchase?
Can requirements not be met by making software?
Are there lending services available that could meet requirements?

Complete the following tables by drawing a cross in the appropriate column.

PURCHASE : Books and audio-visual software	Yes	No
Time and effort is saved	.....	.....
Purchase of new stock is imperative	.....	.....
* It is less expensive to buy than to manufacture	.....	.....
* The finished product can be inspected	.....	.....
* The product is ready for use	.....	.....
* The product can be tested before being used	.....	.....
* The quality, packaging and design of the product can be judged	.....	.....
* It is satisfying to judge finished products	.....	.....
* It is commensurate with syllabus requirements	.....	.....
SELF-MANUFACTURE : Audio-visual		
It occurs with a specific purpose in mind	.....	.....
It takes much more time	.....	.....
A better insight into the possibilities of the medium is obtained during the process of producing	.....	.....
Better understanding of the subject is possible	.....	.....
It is creative and stimulating for pupils as well as teachers	.....	.....
Duplication of existing stock of books is avoided	.....	.....
An audio-visual workroom is essential for production	.....	.....
It is necessary to collaborate with other teachers	.....	.....
LOAN/HIRE		
It is inexpensive	.....	.....
A wider variety is available	.....	.....
Co-operation between borrower and lender is essential	.....	.....
Pupils are afforded the opportunity of consulting media which may be too expensive to purchase	.....	.....
Pupils may borrow media from the Education Library	.....	.....
Software is loaned by the Education Library	.....	.....
Gramophone records are loaned by the Audio-visual Section, Department of National Education	.....	.....
Catalogues for films and gramophone records of the Audio-visual Education Section are available at schools	.....	.....

4. USE OF MEDIA WITH SPECIFIC REFERENCE TO ASSIGNMENTS

4.1 Media User Guidance and the use of media

When media use is realised in practice there exists a definite connection between Media User Guidance and subject media use.

Co-operation between media centre staff and subject teachers is essential as illustrated in diagram 5 (p.11).

By affording pupils the opportunity of learning media skills under controlled conditions i.e. under the guidance of media and subject/class teachers, they are motivated and enabled to use media for the process of learning.

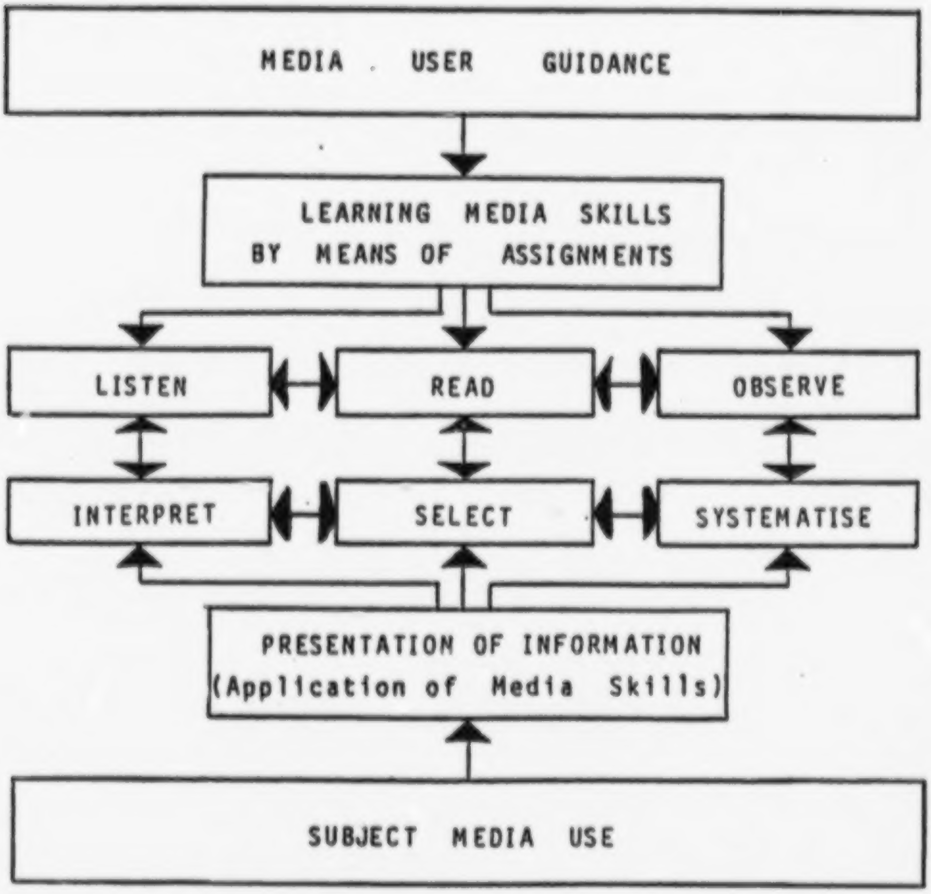

MEDIA USER GUIDANCE
LEARNING MEDIA SKILLS BY MEANS OF ASSIGNMENTS
LISTEN
READ
OBSERVE
INTERPRET
SELECT
SYSTEMATISE
PRESENTATION OF INFORMATION (Application of Media Skills)
SUBJECT MEDIA USE

Diagram 5: Media user guidance co-ordinated with subject media use

4.2 Assignments

Giving pupils assignments is an excellent way of developing media skills in practice. It should be kept in mind that skills can be learnt as well with short assignments as with long ones, thus avoiding much frustration of teachers and pupils.

From time to time well-structured worksheets can be used to ensure active involvement of pupils.

The value of well-planned assignments is underlined by the following quotation: *"Assignments are an opportunity for pupils to deepen their understanding of a subject and to acquire or improve their skills in handling information. It is the responsibility of the teacher to provide help with both - that is to see assignments as a way of teaching the subject and the information skills which finding out in the subject requires."* (Marland, 1981:9).

Another source refers to assignments as *"... a record of the child's understanding"* and points out that depending on the situation, they can be used for evaluation and follow-up activity.

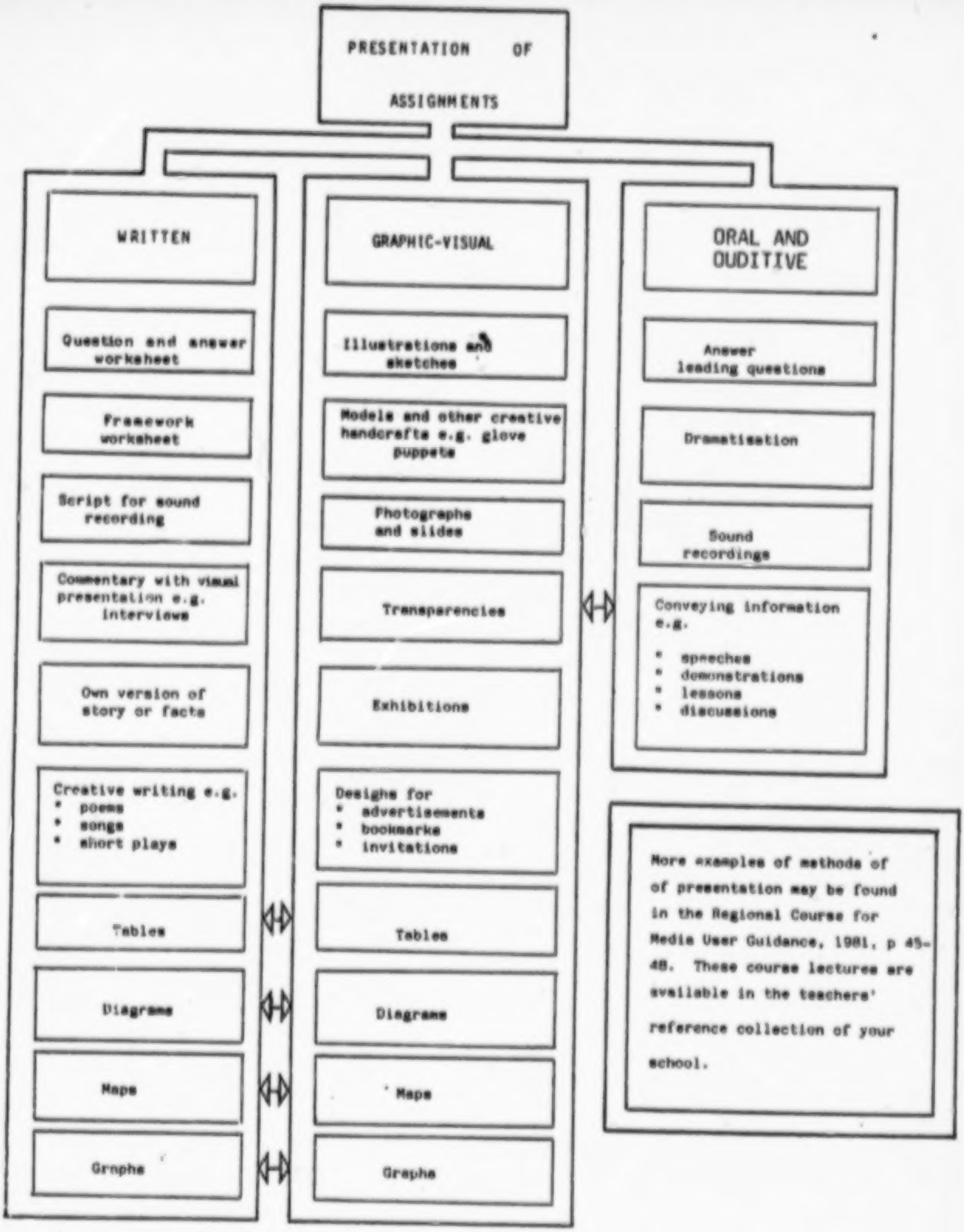
The proposition, *"The quality of the assignment directly influences the success or failure of the learning endeavour"* (Davies, 1974:250), places a heavy burden of responsibility on the shoulders of the teachers and William Burton emphasises it further by clearly stating that assignments *"... requires (time) for pondering, for critical study, for written organization, for try-out, for discussion with others. It requires systematic and continuous effort. Good assignments simply cannot be 'dashed off' "* (Davies, 1974:250).

4.3 The purpose and nature of assignments

PURPOSE	NATURE
The assignment may vary depending on the aims of the lesson and the topic. What is intended? • An introduction to the learning content being taught in class. • The collection of factual information for discussion in class. • Enrichment of the syllabus. • Stimulation of creative self-activity. • Correlation with other subjects. • Differentiation according to the abilities of the pupils. • Consolidation of a lesson. • Literature searches to discover subject sources. • Systematisation of information. • Ongoing involvement in the lesson. • Stimulating personal interest. • Application of media skills, e.g. the selection of suitable media and their correct use.	The nature of an assignment is determined by the objectives: • A single assignment on a specific subject; for example, group or class discussions, brief notes for oral work, written work or some other presentation of facts. • A more comprehensive assignment on a wider topic; for example, to develop the skill of analysing, systematising and presenting information in a given form or according to own choice. • A differentiated topic or aspect of the syllabus to be covered by independant study and shared with peers. • Reading assignments that supplement text books and stimulate meaningful group discussions. • An assignment aimed at the use of specific sources, e.g. different dictionaries, atlases, concordances, etc. (from simple to advanced in nature).

4.4 The presentation of assignments

By varying the method of presentation after pupils have gathered material, a great deal of enthusiasm may be generated for both teacher and pupils. Presentation by pupils can be divided into three categories, namely written, oral and graphic-visual, see Diagram 6 (p. 13).


PRESENTATION OF ASSIGNMENTS
WRITTEN
GRAPHIC-VISUAL
ORAL AND OUDITIVE
Question and answer worksheet
Framework worksheet
Script for sound recording
Commentary with visual presentation e.g. interviews
Own version of story or facts
Creative writing e.g.
* poems
* songs
* short plays
Tables
Diagrams
Maps
Graphs
Illustrations and sketches
Models and other creative handcrafts e.g. glove puppets
Photographs and slides
Transparencies
Exhibitions
Designs for
* advertisements
* bookmarks
* invitations
Tables
Diagrams
Maps
Graphs
Answer leading questions
Dramatisation
Sound recordings
Conveying information e.g.
* speeches
* demonstrations
* lessons
* discussions

More examples of methods of of presentation may be found in the Regional Course for Media User Guidance, 1981, p 45-48. These course lectures are available in the teachers' reference collection of your school.

Diagram 6: Presentation by pupils.

4.5 Workshop

Using three themes from the syllabus of a subject you are familiar with, complete the diagram according to the example given.

THEME/ topic	METHODS OF PRESENTATION		
	WRITTEN	ORAL	VISUAL
(Example) *The Voortrekkers*	1. Text for sound recording	1. Dramatisation	1. Maps
	2. Question and answer worksheet	2. Conveying of information	2. Exhibitions
	1.	1.	1.
	2.	2.	2.
	1.	1.	1.
	2.	2.	2.
	1.	1.	1.
	2.	2.	2.

4.6 Guide-lines for assignments to pupils

By supplying answers to the same questions, asked in connection with the model: "Media use in practice," Diagram 1, quite useful answers come to the fore, which can be used when planning assignments.

4.6.1 What is intended?

- Formulate the objective to be achieved clearly.
- Take subject requirements and abilities of pupils into account.

4.6.2 Who are involved?

Subject/class teacher and media-teacher (media centre):

- Discuss plans beforehand, exchange ideas
- Hold discussions regarding user skills which pupils have already mastered, e.g. note-taking, systematising information, quoting references etc.

Media Committee:

- They are responsible for supervisory planning according to the school programme and subject requirements.

Subject/class teachers mutually:

- Liaise with colleagues to prevent pupils being overloaded with work.

4.6.3 Where is it done?

- Determine whether the nature of the assignment requir that it be completed in the media centre under guidance of the subject/class teacher and the media-teacher (media centre).
- Determine whether individuals or groups can complete it with the help of the media-teacher (media centre).
- Determine when assignments can be completed in classroom with the aid of block loans.

4.6.4 With what is it done?

- Find out what stock is available for your subject.
- Base your choice of themes on the sources available.
- Point out deficiencies to the media-teacher (media centre) and make recommendations.
- Become involved in producing audio-visual software based on syllabus requirements.

- Order films from Film Services well in advance and allow for a preview before assignments are based on it.
- Build up a bank of successfully completed assignments for later use and adapt them to changing requirements.

4.6.5 How is it done?

- Devote adequate time to planning and stress the importance of quality over quantity.
- Keep in mind the ability of the pupils and the extent of their knowledge.
- Make use of the variety of media and give differentiated assignments to pupils.
- Give comprehensive instructions for written assignments and ensure that all pupils understand what is expected of them.
- Compile a list of printed and audio-visual media and ensure that every pupil has a source to start off with.
- State clearly that illustrations should be functional and should only serve to elucidate the text.
- Encourage pupils to make illustrations by using the tracing tables, and discourage the use of photocopies.
- Encourage pupils to read widely on topics/themes dealt with in class and compile short reading lists for this purpose in collaboration with the media-teacher (media centre).
- Rotate written assignments with oral, class, group and individual ones.

4.6.6 When are the assignments given?

- Act spontaneously and give an assignment whenever a situation arises that justifies one (individual or group assignments).
- Make allowances for the media programme planned by the media committee.

- Discuss the possibility of sending groups to the media centre outside scheduled times.
- Consult with the media-teacher (media centre) whenever a class visits the media centre for reference work.

4.7 Evaluation of assignments

"Evaluation is employed by educators to determine the degree of excellence being achieved by an educational program, method, innovation, or any combination of these ..." (Davies, 1974:259).

EVALUATION OF THE SET ASSIGNMENT AND THE SUBJECT	EVALUATION OF THE COMPLETED ASSIGNMENT
° Have the aims and objectives of the assignment been achieved? ° Has differentiation according to pupil ability been successfully applied? ° Has the assignment been clearly and unambiguously formulated? ° Does it promote learning? ° Has enough time been allowed? ° Are the available media adequate? ° Is there enough variety in comparison with other assignments in the subject? ° Is it meaningful and worthwhile enough to take up pupils' time with it?	° Always evaluate an assignment so that pupils will be motivated to acquire the necessary skills and to work with the same enthusiasm in the future. ° Offer pupils an opportunity to evaluate the assignment critically themselves during a discussion.
N.B. Regular re-evaluation is essential in order to adapt to changing circumstances of pupils as well as teachers.	

5. WORKSHOP

5.1 Lesson planning

- Fit the lesson you have brought along into the framework below and state for which subject and standard the lesson is being planned. Indicate how you intend making use of audio-visual media.
- As you discuss them, evaluate the lessons according to the table on page 20 per. 5.2: "Evaluation" (20 minutes).
- Select one lesson and report back (40 minutes) .

LESSON PLANNING
SUBJECT:...................... STANDARD: ....
OBJECTIVE
LEARNING CONTENT
METHOD

AUDIO-VISUAL MEDIA USED

PUPIL ACTIVITY WORKSHEET

5.2 Evaluation

Complete the evaluation form below with X and ✓ to indicate whether the use of audio-visual media is suitable or not while discussing the lessons in your group (20 minutes).

Lesson number	ASPECTS				
	Objectives	Learning content	Method	Audio-visual media	Learning activities
1					
2					
3					
4					
5					
6					
7					
8					

6. SUMMARY

Apart from certain lessons where either you or your pupils make use of audio-visual material in the classroom, you will also give your pupils assignments which will require them to make use of media during school hours, in the media centre. This can occur

- ° when a situation arises in class justifying spontaneous use of media or planned use according to syllabus requirements and classroom activities in consultation with the media-teacher (media centre).
- ° on an ongoing basis with differentiation in mind, where individuals or groups are sent to the media centre with assignments.

After school hours the media centre is always available for independant study by pupils or for the use of media according to their personal interests or hobbies.

BRONNELYS / SOURCE LIST

CLOETE, J J N 1980 Inleiding tot die publieke administrasie. Pretoria: Van Schaik.

COETZEE, S A V 1983 Doeltreffende Voorraadbou. Skoolmediasentrum/School Media Centre, 1983, v 15, no 1 : 34.

DAVIES, R A 1974 The School Library Media Centre: a force for educational excellence. 2nd ed. New York: Bowker.

DE WET, P R 1981 Inleiding tot onderwysbestuur. Kaapstad: Lex Patria

EDUCATIONAL TECHNOLOGY CENTRE 1978 Learning to listen... Listen to learn: using the tape recorder and listening post in the classroom. 2nd ed. Adelaide: Educational Technology Centre.

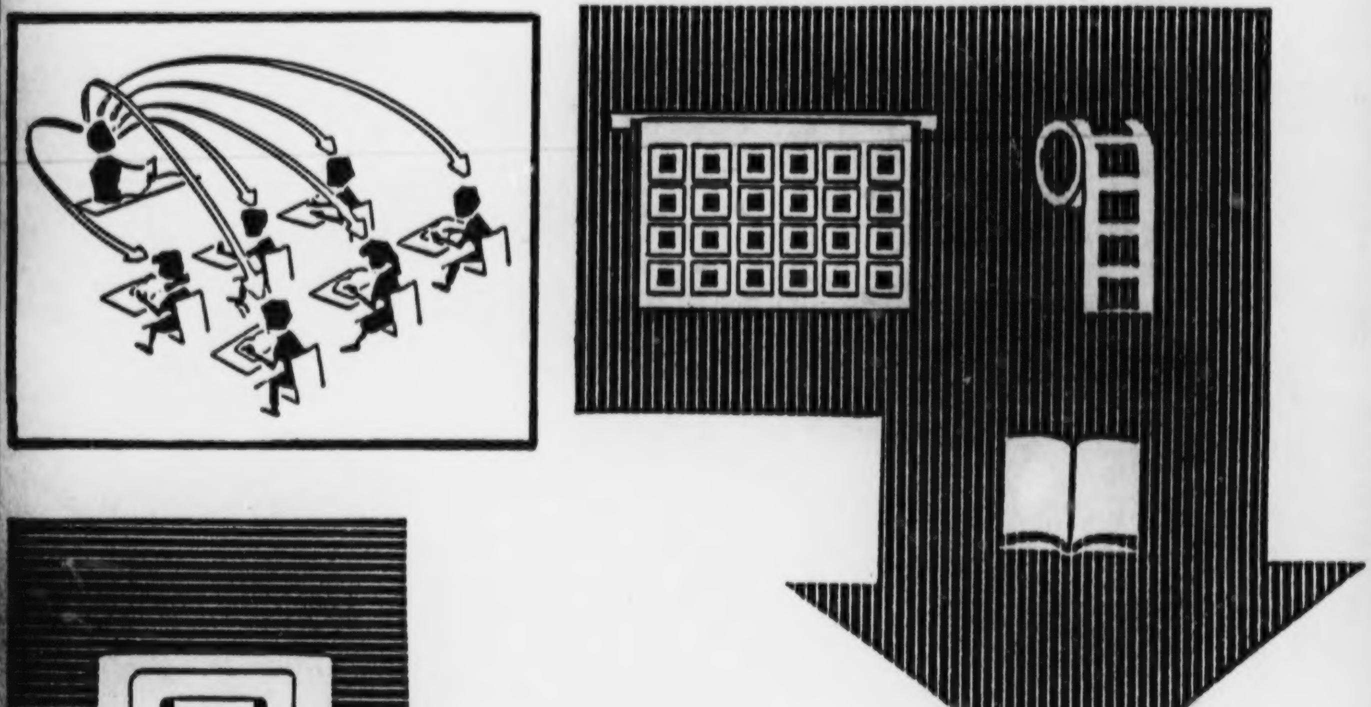
MACQUARIE UNIVERSITY, Centre for Advancement of Teaching 1978 Using non-book resources in the Primary School. Sydney: Macquarie University. (Minicourse M30).

MARLAND, N 1981 Information skills in the secondary curriculum. London: Methuen.

TRANSVAAL ONDERWYSMEDIADIENS / TRANSVAAL EDUCATION MEDIA SERVICE 1981 Streekkursus vir Mediagebruikersleiding / Regional course for Media User Guidance. Pretoria: TOMD/TEMS.

PLANNING MEDIA SERVICES FOR EFFECTIVE MEDIA USE IN SCHOOLS

10



TRANSVAALSE ONDERWYSDEPARTEMENT
TRANSVAAL EDUCATION DEPARTMENT

ORIËNTERINGSKURSUS: ONDERWYSMEDIA
ORIENTATION COURSE: EDUCATIONAL MEDIA
1984

348

10. PLANNING MEDIA SERVICES FOR EFFECTIVE MEDIA USE IN SCHOOLS

Miss C F M van Wyk
Head:
Education Media Service

AIM

To review

- departmental media policy;
- formulating a school media policy;
- constitution and functions of a Media Committee;
- educational use of media centre and media;
- departmental manuals, procedures, study guides, etc. available; and
- drawing up a media programme.

CONTENTS

1. Introduction
2. Departmental policy
3. General aims for the media centre and media use
4. Planning the implementation
5. Components of the school media policy
6. The Media Committee
7. The educational use of the media centre and media
8. Departmental manuals, procedures and services
9. The media programme
10. Suggestions for planning and implementing media programme in practice, as a follow-up to course
11. Bibliography

PLANNING MEDIA SERVICES FOR EFFECTIVE MEDIA USE IN SCHOOLS

1. INTRODUCTION

During such an intensive course, in which different aspects of media use in the educational programme were elucidated, discussed and applied in practice, no doubt you were often troubled by the thought of how this knowledge and experience was to be communicated to the principal and your colleagues at school. In this lecture the salient aspects of departmental policy, as set out in the revised Manual for General School Organization, Chapter 40.1, which should reach schools soon, are given in full providing guidance in drawing up a plan of action for the report back on, and implementation of the recommendations of the course.

2. DEPARTMENTAL POLICY

2.1 Policy dictates that every school should establish a media centre and integrate its use purposefully with the educational programme.

2.2 The use of media in teaching and the effective functioning of the media centre should be planned by a media committee chaired by the principal.

2.3 The media-teacher (media centre) is responsible for teaching Media User Guidance to every class in the Senior Primary and Junior Secondary School Phases, as well as for the administration of the media centre. The media committee must appoint an assistant media-teacher to ensure continuity.

2.4 The media-teacher (audio-visual) is responsible for guidance in the educational use of audio-visual media, for production of software, as well as the administration of audio-visual hardware.

2.5 Media centre stock consists of

- printed media, such as books, periodicals, pamphlets and cuttings;
- audio-visual software, such as transparencies, slide series, slide-sound programmes, filmstrips, sound recordings, video cassettes and computer programmes; and
- audio-visual hardware such as projectors, audio and photographic hardware, video systems and microcomputers.

3. GENERAL AIMS FOR THE MEDIA CENTRE AND MEDIA USE

3.1 To provide dynamic and efficient media services which support and enrich the curriculum with a variety of media for teaching and learning.

3.2 To promote the personal and intellectual development of every pupil to its full potential by providing guidance in the use of media, with due regard to the teaching, learning and recreational needs set out in the Program for Media User Guidance.

3.3 To equip pupils with the skills demanded, and the motivation, for the productive and meaningful use of media in school, at home and later in adult life.

4. PLANNING THE IMPLEMENTATION OF DEPARTMENTAL POLICY

4.1 Media use and the educational porgramme of the school

If the school policy is to be implemented with success, a policy for the use of media and the provision of media services should be incorporated in the educational programme. Formulating media policy is part of the overhead planning done by the media committee.

4.2 The leadership of the principal is of primary importance

The school principal as professional leader, who is also responsible for determining school policy, chairs the media committee and plans media policy as an integral part of school policy, as well as the educational programme. (See Diagram 1)

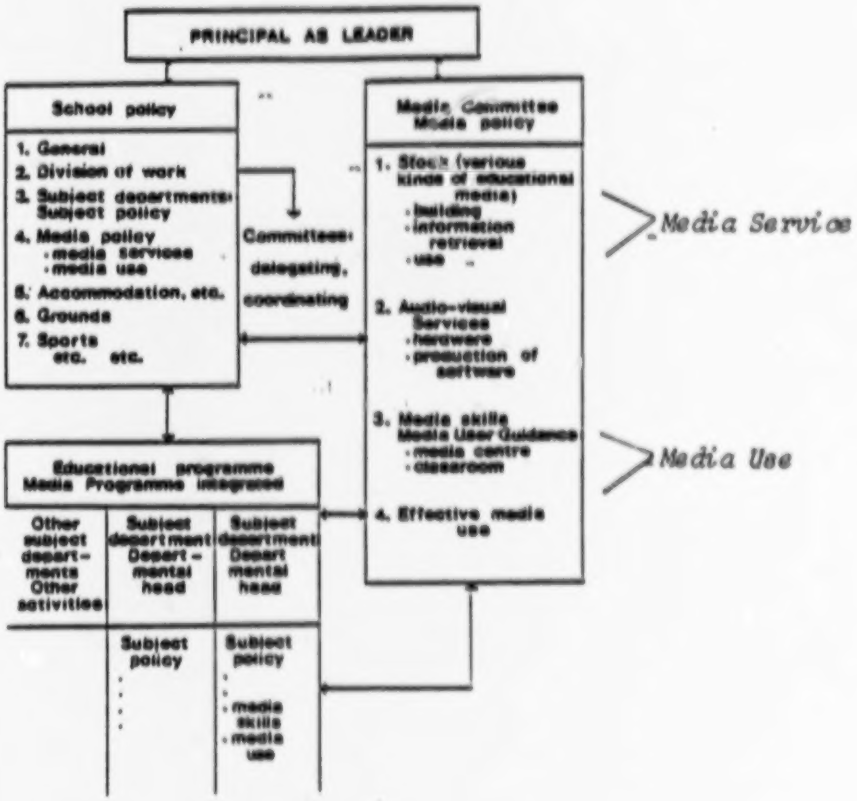

PRINCIPAL AS LEADER
School policy
1. General
2. Division of work
3. Subject departments: Subject policy
4. Media policy
·media services
·media use
5. Accommodation, etc.
6. Grounds
7. Sports etc. etc.
Committees: delegating, coordinating
Media Committee
Media policy
1. Stock (various kinds of educational media)
·building
·information retrieval
·use
2. Audio-visual Services
·hardware
·production of software
3. Media skills
Media User Guidance
·media centre
·classroom
4. Effective media use
Media Service
Media Use
Educational programme
Media Programme integrated
Other subject departments
Other activities
Subject department
Departmental head
Subject department
Departmental head
Subject policy
Subject policy
·media skills
·media use

DIAGRAM 1

5. COMPONENTS OF THE SCHOOL MEDIA POLICY

A method of question and analysis (Cloete, 1980 : 27 and De Wet, 1980 : 46) is useful in formulating school media policy; the following components may be distinguished. (See Diagram 2, p 4)

5.1 What are the objectives?

- To build up and organise a collection of educational media in the media centre so as to provide efficient media services to teachers and pupils.
- To motivate teachers in the use of educational media so that they will explore the potential of various types

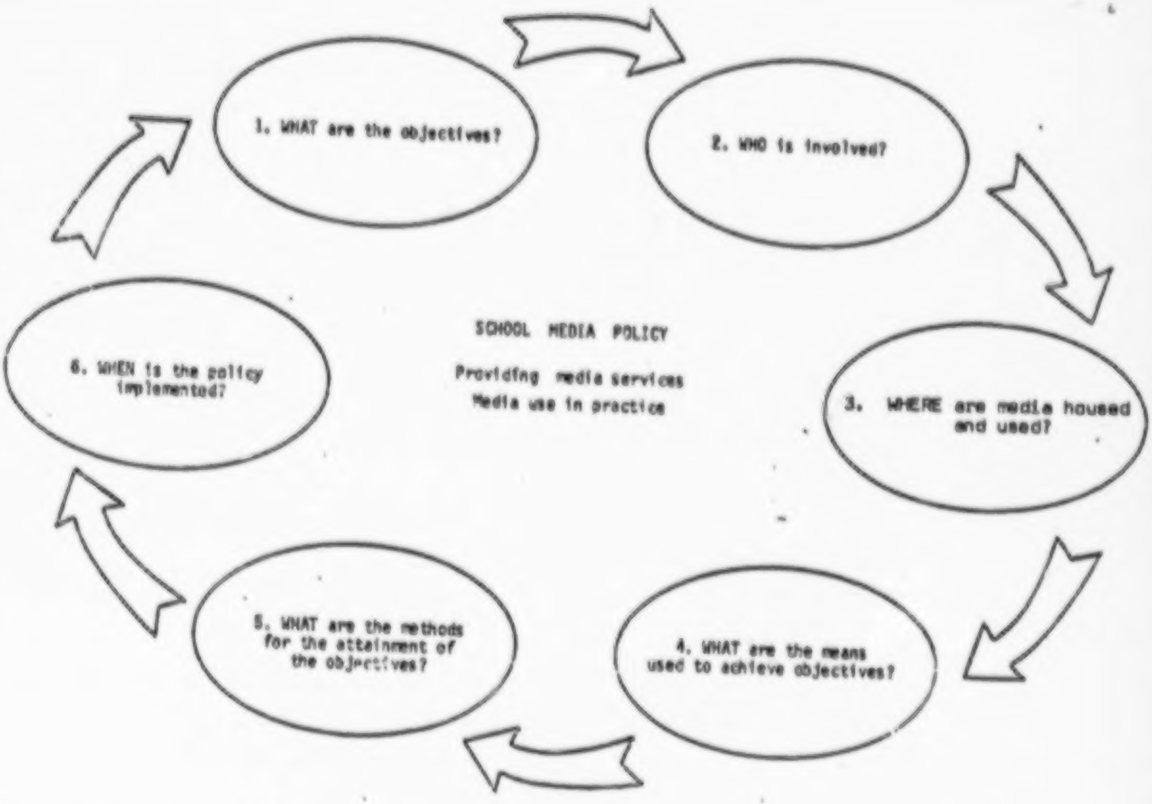

1. WHAT are the objectives?
2. WHO is involved?
3. WHERE are media housed and used?
4. WHAT are the means used to achieve objectives?
5. WHAT are the methods for the attainment of the objectives?
6. WHEN is the policy implemented?
SCHOOL MEDIA POLICY
Providing media services
Media use in practice

DIAGRAM 2

deliberately and integrate media use with the educational programme.

- To enable pupils to master the skills demanded for the productive use of a variety of communication media, through regular use and handling of educational media.

5.2 Who is involved?

- The full-time (PIII and IV part-time) media-teacher (media centre), the assistant media-teacher, the media-teacher (audio-visual) and all members of staff who contribute to the smooth functioning of the media centre.
- All teachers who use the media centre and participate in stock-building and information retrieval for their specific subjects and class needs.

- All pupils using media in the media centre to learn, to consult reference works and for recreational needs, and who are taught Media User Guidance in both media centre and classroom.

5.3 Where are media housed and used?

- In the media centre

  Functional accommodation is essential to the media centre; as media use increases, new needs will arise and will have to be met. The safe housing of stock, without its use being handicapped, is of primary importance.

- In the classroom

  Facilities should be provided for the use of media in every classroom and for the safe storage of hardware.

- At home

  Teachers should motivate pupils to use media at home and should create opportunities for feedback in class.

5.4 What are the means used to achieve objectives?

- Media stock in the media centre, evaluated with the use of educational criteria and recommended by members of staff who know the stock and help to index it for use.
- The optimal use of limited funds by identifying needs and gaps in stock; determining priorities for the acquisition of balanced stock.
- Planned supplementing of stock through intensive subject indexing of sources, the production of audio-visual software and building up picture, pamphlet and cuttings collections.
- Making use of the Centralized Services offered by the Education Media Service, viz selection, cataloguing, rebinding, central provision of stock, guidance and advice.
- Making use of the Teachers' Reference Collection in the school, as well as the Education Library for personnel development.

- Trained and motivated staff able to equip pupils with skills for media use so that they may face with confidence, a future with escalating technological development, and mass media playing a decisive role.

5.5 What are the methods for the attainment of objectives?

- Efficient administration of the media centre.
- Planning functional media services to meet the needs of both teachers and pupils.
- Planning media use in the media centre and classrooms; drawing up timetables for media use; the spontaneous use of media during lessons and for individual purposes.
- The development of media skills with a view to media literacy through the use of visual, auditive, audio-visual and other media.
- The practical application of aspects of media use encountered in in-service training courses, study guides, circular minutes and manuals; a regular feedback and discussion and evaluation of results.
- Guidance provided by advisers (media centre and audio-visual) during visits to schools or at work group meetings; putting guidelines into practice and evaluating results.

5.6 When is the policy implemented?

- Continuously, after needs and priorities have been determined. A media programme should first be drawn up, i.e. for the functioning of the media centre and media use, as part of the educational programme.

6. THE MEDIA COMMITTEE

6.1 Composition of the Media Committee

The head as professional leader, is the chairman of the Media Committee. Other members are a deputy head (second to the head), departmental heads, representatives of specific subjects and school phases, the media-teacher (media centre), assistant media-teacher and the media-teacher (audio-visual), depending on the size and circumstances of the school.

The principal should also involve members of staff with particular talents in the work of the Media Committee, e.g. art, photography, elocution, etc., and new staff showing interest.

Aspects of the programme may be delegated to sub-committees.

6.2 Functions of the Media Committee

The model used to distinguish between the components of the school media policy, is also used to give an exposition of the functions of the Media Committee. This shows how media policy may be determined and its implementation planned.

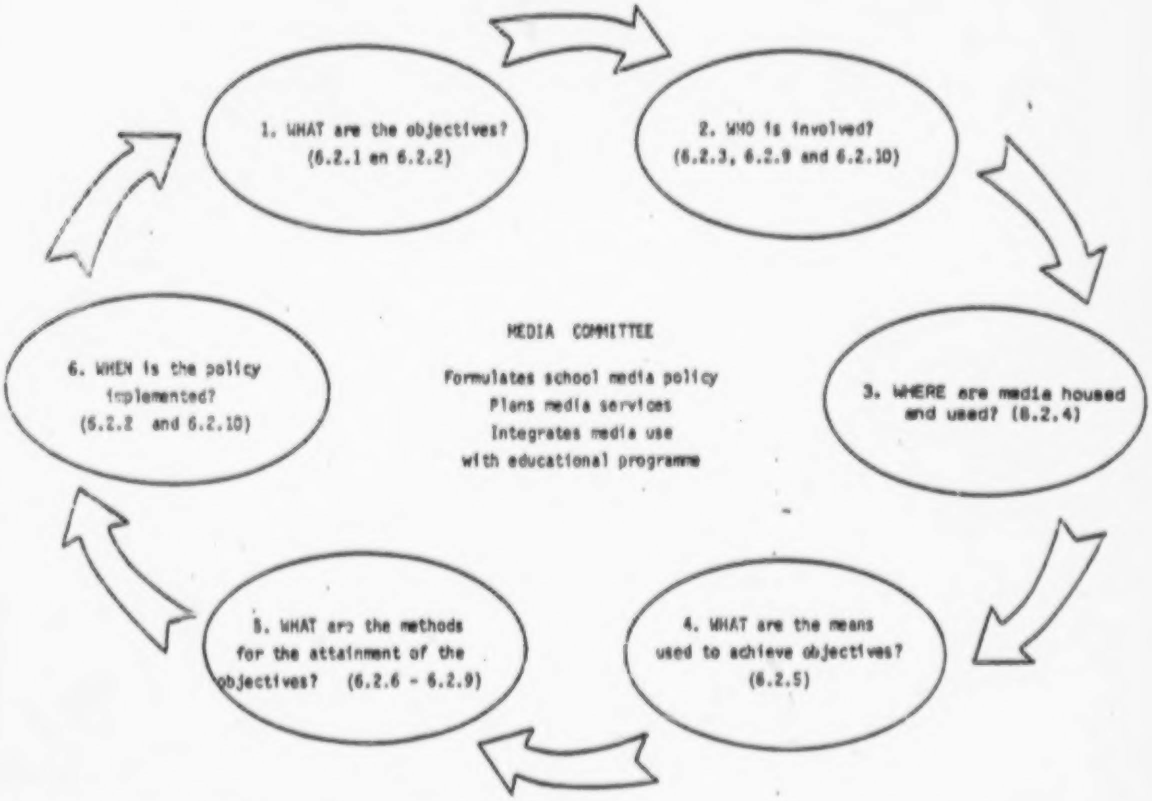

1. WHAT are the objectives? (6.2.1 en 6.2.2)
2. WHO is involved? (6.2.3, 6.2.9 and 6.2.10)
3. WHERE are media housed and used? (6.2.4)
4. WHAT are the means used to achieve objectives? (6.2.5)
5. WHAT are the methods for the attainment of the objectives? (6.2.6 - 6.2.9)
6. WHEN is the policy implemented? (6.2.2 and 6.2.10)
MEDIA COMMITTEE
Formulates school media policy
Plans media services
Integrates media use
with educational programme

DIAGRAM 3

WHAT?

6.2.1 Formulating the school media policy with a view to needs and circumstances peculiar to the school.

6.2.2 Planning the implementation of policy and drawing up a media programme as integral part of the educational programme of the school.

WHO?

6.2.3 Involging staff and detailing specific responsibilities, e.g. full-time media-teachers (media-centre and audio-visual) in bigger schools; assistant media-teacher and other members of staff responsible for aspects of administration and the use of media well as the media centre.

WHERE?

6.2.4 Planning adequate accommodation for the media centre, safe storage of hardware and the provision of facilities for media use in classrooms.

WHAT MEANS?

6.2.5 Planning the acquisition of a balanced and useful stock in the media centre; the rôle of subject teachers in stockbuilding, culling and indexing; establishing essential needs and priorities before spending available funds.

WHAT METHODS?

6.2.6 Drawing up timetables for the systematic teaching of Media User Guidance in the media centre and in classrooms, according to the Programme for Media User Guidance; making provision for periods on the timetable.

6.2.7 Promoting the use of available media for teaching and learning; writing guidelines

WHAT METHODS?

for assignments to encourage the systematic development of media skills. This is a principle inherent in subject policy.

6.2.8 General planning for the smooth functioning of the media centre and the provision of media services, e.g. circulation, information retrieval, literature searches, block loans, guidance in the use of audio-visual hardware and production of software.

WHEN?

6.2.9 Possible delegation of specific responsibilities to sub-committees and individual staff members with a particular innate bent or interest.

6.2.10 Compilation of media programme based on priorities; arranging for regular feedback to the Media Committee and staff during staff meetings; evaluation of progress and adapting policy, procedures and programme regularly to cater for changing needs.

7. THE EDUCATIONAL USE OF MEDIA CENTRES AND MEDIA IN TEACHING

7.1 Introduction

A media centre in a school establishes a network of interrelated activities which lead to a gradual change of emphasis in teaching. The escalation of technological development in the world today dictates less emphasis on transfer teaching and more on 'learning to learn'; on the learning skills and activities which enable the learner to keep up with, rather than be swamped by, change. (Beswick, 1981 : 37)

Typical activities in the media centre would be consulting specific media, structured or independent information searches with a purpose and interested browsing for pleasure and recreation. The educational objectives are: to discover and develop the skills for information searches; to become acquainted also with a variety of sources of information and forms of media; to encourage interest and personal involvement and develop confidence in the use of media. These objectives are best developed in practice, i.e. by the teacher who uses media effectively in teaching and stimulates pupils to do so by giving them feasible assignments.

7.2 Programme for Media User Guidance and subject media use

7.2.1 Aims of the Programme for Media User Guidance

The Programme caters for all school phases as well as for special schools. The aims for a specific phase are summarized briefly and a scheme outlines the components, contents and presentation of Media User Guidance.

7.2.2 Media User Guidance and subject media use

The premise in Media User Guidance is that pupils need progressive guidance in the use of media. In the media centre basic training is given for effective media use in the classroom. The media-teacher and subject and class teachers should, therefore consult one another frequently so that skills developed in the media centre, may be consciously applied and reinforced in the classroom.

7.2.3 Junior Primary School Phase

In this phase Media User Guidance is fully integrated with classwork and block loans from the media centre are used by thw class teacher. These block loans are housed in tne media corner for a time so that pupils may handle, use and enjoy them. Periodic visits to the media centre should provide pupils with further opportunities for putting to use their skills in media use. Pupils are also encouraged to borrow books to read at home.

7.2.4 Senior Primary and Junior Secondary School Phases and Special Schools

The timetables of the Senior Primary and Junior Secondary School Phases, as well as those for Special Schools, allocate one period per week to Media User Guidance. In this period media skills leading to the development of media literacy, are inculcated purposefully and systematically by the media-teacher (media centre). This includes the following:

- using all printed media;
- using visual media, e.g. pictures, picture-books, tables, graphs, illustrations, slides and filmstrips;
- using auditive media, e.g. radio programmes and a variety of sound recordings of stories, readings, music and singing;
- using audio-visual media, e.g. filmstrip with sound, slide-sound, 16 mm films and television;
- using a variety of forms of communication, e.g. verbal communication forms, conversation, class discussions, group discussions, report back, choral speaking, mime, dramatization, hand puppets and body language; and
- using worksheets, before, during or after the use of media to effect pupil involvement.

The subject teacher must continue the training during subject periods in the media centre by previous arrangement with the media-teacher, and in the classroom with the use of media block loans. The use of media creates opportunities for differentiation in teaching and for enrichment of the syllabus, such as for example sending smaller groups or individuals to the media centre with specific assignments and getting them to report back to the class as a whole.

7.2.5 Senior Secondary School Phase

It is clear from the aims of the Programme for Media User Guidance that the essence of the programme is the inculcation of media skills and the use and demonstration of these skills in learning and studying; in recreation and enjoyment; in the classroom; in the media centre and at home. This implies periodic visits to the media centre during subject periods so as to: introduce pupils to more advanced sources; to reinforce skills in the use of the media centre in conducting literature searches, in finding information in sources and in utilizing the information.

The demands on the subject teacher are particularly great during this Phase because opportunities must be provided for creative and stimulating media use by groups or individuals.

7.2.6 Independent use of media by pupils

Pupils should be encouraged throughout their school career to visit the media centre and to use media for their own needs and interests. The habitual user of books and other media at school is also the user of college, university, special and public libraries as adult, and it is the task of the school to motivate and stimulate pupils to consistent, deliberate and meaningful media use.

7.2.7 The media centre must be open to users during school, as well as during the afternoon, if the educational programme is to be effectively supported and enriched.

7.3 The use of media for teaching

The wide range of media available in the media centre and the ample provision of a variety of audio-visual hardware to schools, is a challenge to teachers to make their teaching more effective through the imaginative and designed use of the medium or media selected for a particular purpose.

7.4 Summary

For a summary of these aspects of effective educational use of the media centre and media in teaching, see Diagram 4 (p 14).

8. DEPARTMENTAL MANUALS, PROCEDURES, SYLLABUSES, COURSE LECTURES, STUDY GUIDES AND MEDIA SERVICES

8.1 Manuals

The Manual for General School Organization contains, besides Chapter 40.1 School Media Centres, other references to media centres and media use, of importance to the Media Committee.

The Manuals for secondary, primary, pre-primary and special education refer to allocation of periods and other aspects of media use.

8.2 Procedure for the administration of the media centre : Information Guide no 8

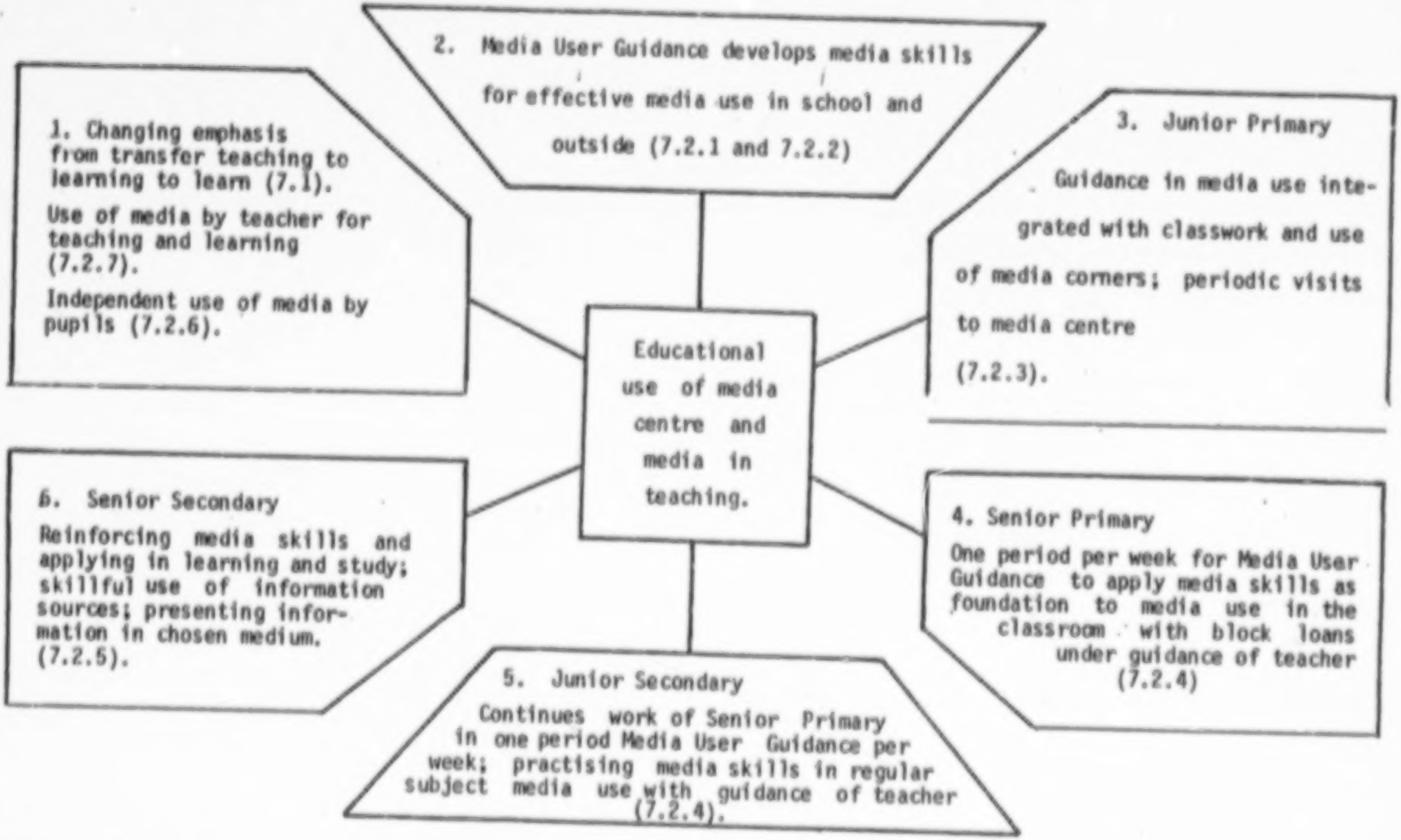
This Information Guide, compiled by the Education Media Service, is to be organised in a ring binder and serves as the administration file for the media centre. This Information Guide covers the following aspects:

A. Departmental policy

B. Planning of implementation of departmental policy

C. Physical equipment of the media centre

D. Procedures for the administration of the media centre
   1. Procedure for the selection of media
   2. Procedure for the acquisition of media
   3. Procedure for classification and cataloguing, and supplementary information retrieval



Educational use of media centre and media in teaching.

1. Changing emphasis from transfer teaching to learning to learn (7.1).
Use of media by teacher for teaching and learning (7.2.7).
Independent use of media by pupils (7.2.6).

2. Media User Guidance develops media skills for effective media use in school and outside (7.2.1 and 7.2.2)

3. Junior Primary
Guidance in media use integrated with classwork and use of media corners; periodic visits to media centre
(7.2.3).

4. Senior Primary
One period per week for Media User Guidance to apply media skills as foundation to media use in the classroom with block loans under guidance of teacher
(7.2.4)

5. Junior Secondary
Continues work of Senior Primary in one period Media User Guidance per week; practising media skills in regular subject media use with guidance of teacher (7.2.4).

6. Senior Secondary
Reinforcing media skills and applying in learning and study; skillful use of information sources; presenting information in chosen medium.
(7.2.5).

DIAGRAM 4

4. Procedure for organising media
    4.1 Procedure for organising printed media
    4.2 Procedure for organising audio-visual software
    4.3 Procedure for organising audio-visual hardware
5. Procedure for lending media
6. Procedure for control of media centre stock
7. Procedure for organising the teachers' reference collection

E. Guidance: Advisers' reports

F. Alphabetical index

The administration of the media centre should be systematically planned and carried out. Record should be kept of progress made.

8.3 Syllabuses

The Programme for Media User Guidance is aimed at the media centre and media use. In subject syllabuses and other programmes provision is made for relevant media use; this aspect should also be covered by subject policy.

8.4 In-service training

The use of media is included in all in-service training courses, and a bound set of lectures is provided to schools for taking into stock in the Teachers' Reference Collection. After a course, the potential for media use in a specific subject or phase should be reported to the Media Committee for follow-up and feedback.

8.5 Study Guides

Study guides often include practical guidelines on the use of media for the needs of a specific subject. These possibilities for use should also be brought to the attention of the Media Committee so that they may determine needs and priorities.

8.6 Visits to schools

8.6.1 The senior advisers (media centre) visit schools to give guidance in teaching Media User Guidance, in drawing up schemes of work and in the planning and presentation of lessons, as well as in the use of media for teaching and learning in general.

They give guidance on all aspects of the administration of the media centre, lecture at courses and take part in group meetings of media teachers (media centre).

The senior advisers (audio-visual) give guidance in the educational use of audio-visual media,the handling of hardware and in the production of software, to groups of teachers in the afternoon, and visit schools by request.

The advisers report to the principal of the school and to the regional inspector.

8.6.2 The regional inspectors ensure that the departmental policy regarding media centres is carried out, and follow up recommendations of senior advisers. Regional and circuit inspectors are kept informed of and grant permission for visits.

8.6.3 The inspectors (academic) and subject advisers, supervise subject stock in the media centres, determine needs, make recommendations regarding supplementing the stock and give guidance in the production of software. They determine whether effective use is being made of the available educational media and give guidance in the use of media for a school phase or subject.

8.7 Media Services

8.7.1 The Education Media Service is responsible for planning and extending media services in schools, and provides centralized services to media centres.

These centralized services include: selection of stock; guidance in acquisition of stock; updating the administration file in the media centre; a central classification and cataloguing service; compiling the Media Guide, bibliographies and reading lists; central provision of books, periodicals and audio-visual software; compiling the Catalogue for the media centre; providing technical advice on buying hardware and having it serviced; training in handling hardware and in producing software; general guidance on media use.

8.7.2 Allocations for media centres are determined according to directives given in the estimate forms of the different types of school.

The Media Guide lists a selection of the best media available from which schools may choose their sources for direct purchase.

Books, journals and audio-visual software not listed in the Media Guide may also be purchased, provided a substantiated quotation is submitted to the Education Media Service for advice.

8.7.3 A number of books and/or items of audio-visual software are provided to schools annually for specific school subjects. The subject committees select the books and software and the Education Media Service places orders and delivers stock to schools.

A standing subscription to periodicals, selected by the subject committees, is also arranged by the Education Media Service. Lists of the titles concerned are sent to schools well before delivery is due, so as to enable them to adapt their own subscription to this.

8.7.4 The initial allocation of stock for new schools comprises basic ready reference stock, non-fiction, fiction and available audio-visual software.

This allocation is delivered as soon as the school concerned has adequate accommodation and the required staff.

8.7.5 The Catalogue for the Media Centre lists all furniture and equipment for the media centre, as well as items needed for hardware.

Provisional estimate forms with full instructions for furniture, audio-visual hardware and other equipment are sent to schools during the first term. Particulars in the provisional estimate form for the media centre should be included in the school's estimate form as well.

Should schools wish to buy hardware not listed in the catalogue from school funds, it would be advisable to phone the Education Media Service for advice on the quality and usefulness of the product concerned.

8.7.6 Stationery for the media centre is requisitioned from school boards on form TED 87.

8.7.7 Housing

(1) Primary schools and clinic schools

The standard school plan for schools with more than 200 pupils provides for a fully equipped media centre. For primary schools, with an enrolment of below 200, as well as for clinic schools, a pre-fabricated room is provided, to be equipped as media centre.

(2) Secondary schools and special schools

The standard school plan provides for a fully equipped media centre.

(3) Schools lacking a standard media centre may equip any suitable accommodation for the purpose, provided the school board approves.

Schools not able to make provision for separate accommodation for the media centre, should follow existing procedures for accommodation needs.

The Education Media Service may be called upon to advise schools who wish to improve their facilities on their own innitiative.

(4) A storeroom with burglarproofing should be equipped for storing hardware, as near as possible to the media centre in all cases. The school board must be consulted.

(5) Burglar-proofing is essential to all media centres used to house hardware, such as music centres and video systems permanently. This need should be brought to the attention of the school board.

9. MEDIA PROGRAMME

9.1 Introduction

Before the media programme is drawn up, clearly the Media Committee should know departmental policy, and particularly, the provision made for implementation of policy. (See Diagram 5, first and second column). The Committee also determines school media policy and plans its implementation as part of the educational programme of the school (Diagram 5, last column). Because schools' circumstances differ, each school will have to compile its own concise manuals, procedures or guidelines (refer to Lecture 9, par 4.6 for Guidelines for assignments). In point of fact, most of the lectures delivered during this course have been made available in a form which lends itself to use as manual. Procedures for the use of the media centre, for instance, are unique to every school, but schools may use the departmental procedures as a starting-point.

9.2 Drawing up a media programme

9.2.1 The media programme : A plan of action

Needs must be identified and priorities determined, then a plan of action should be drawn up and integrated

TRANSVAAL EDUCATION DEPARTMENT		SCHOOL
Education Media Service determines departmental media policy	MEDIA POLICY	Media Committee determines school media policy
Provides for implementation of policy by means of manuals prescribed procedures syllabuses in-service training study guides visits to schools media services	MEDIA CENTRE MEDIA SERVICES MEDIA USE	Knows what the Department provides Provides for implementation of media policy as part of educational programme by compiling manuals procedures guidelines and planning the media programme

IAGRAM 5

with the educational programme of the school. The media programme may include a number of these plans of action, e.g.

Bringing the administration of the media centre up to the mark.

Orientating members of staff in the use of media in education in general.

Guidance in the use and/or production of a specific medium.

Plans of action for reporting on the contents of this course may, for instance, form a large part of the media programme for the next few terms.

9.2.2 Considerations and strategies for planning and implementing the Media programme

(1) Phases for adoption of renewal and change

The use of media in teaching brings about change and innovation which should be catered for in the media programme. Not all members of staff are equally prepared for or willing to become involved in a media programme which is going to make very specific demands. In the "Diffusion Strategies Module" of the Instructional Development Institute (University Consortium ... 1971 : 11) these phases for adoption and innovation have been identified as follows:

> "Adoption Phases
>
> Individuals go through certain psychological phases in deciding whether or not to adopt an innovation. These stages are:
>
> Awareness -- becoming aware that a new product or practice exists.
>
> Interest -- developing a curiosity about how the new idea works and what its benefits may be.
>
> Appraisal -- mentally evaluating the pros and cons of the innovation for one's own situation . . . how would it work for me?
>
> Trial -- trying out the new idea on a small scale.
>
> Adoption -- deciding to make continued use of the new product or practice."

The compilers of the Module point out that the phases of awareness, interest, appraisal and trial have to be followed step by step to reach the phase of adoption. 'So don't attempt to rush a person through to a hasty decision; be a 'facilitator' - help him to have a successful experience at each step along the way".

For drawing up and implementing a media programme, the adoption phases may be adapted as follows.

1.	AWARENESS	Teachers become aware of the existence of a new idea.
2.	INTEREST	Teachers develop curiosity about the content of the new idea, its possibilities for implementation and possible advantages.
3.	APPRAISAL	Teachers begin to consider practical implications for own subject or class teaching: what are the advantages and disadvantages for ME and MY PUPILS?
4.	TRIAL	Teachers put the idea to the test on a small scale.
5.	ADOPTION	Teachers decide to put the new innovation into practice and incorporate it in the teaching programme.

DIAGRAM 6

(2) Adopter types

Members of staff are widely divergent in their adoption of innovation. We find the following types:

- The teacher who has initiative and is eager to adopt new innovations but loses interest just as rapidly (innovator).
- The experienced teacher and subject specialist who weighs them carefully but accepts innovations readily and carry them through successfully (early adopter).
- The teacher not too quick to accept innovation but also not keen to lag behind; after consultation he will follow a leader as one of a group (early majority).
- The teacher who is sceptical and cautious of innovation, but will succumb to group pressure eventually (late majority).
- The teacher who opposes change and innovation and remains caught in the rut of traditional behaviour patterns (resistor). (University Consortium...; 1977:12)

(3) Strategies to make innovation acceptable to staff (University Consortium..., 1977 : 13)

"Diffusion Activities

TALK TO: a good, all-purpose device . . . face-to-face inter-actions can move a person along through just any phase.

ASK HELP: for certain people -- the more eager adopters -- soliciting their assistance led to advancement at any phase; for others, it paid off only in the Awareness and Interest phases.

PILOT TEST: could be used to arouse Interest for all but the footdraggers . . . but payoffs are moderate.

SITE VISIT: another all-purpose activity; by visiting a program in action a person might have his interest stimulated as well as having an excellent opportunity to mentally Appraise how it might work out in his own classroom.

PRINT: rather weak, useful mainly for arousing Awareness.

PRESENTATION: useful for achieving small advances in Awareness and Interest; reaches a lot of people at one time.

DEMONSTRATION: a powerful tool, especially for those who already have some interest; if conducted by an influential teacher it can be just about the strongest persuader.

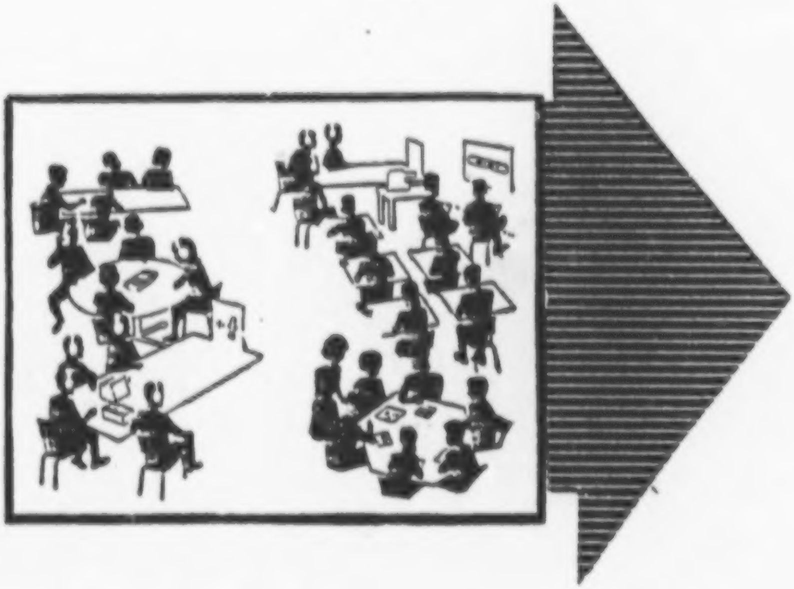
WORKSHOP (SELF): most useful for those in the Trial phase: those who are not ready to try the idea out will not benefit much from training in its methods.

MATERIALS WORKSHOP: research indicates that getting interested teachers involved in preparing materials related to an innovation is one of the most powerful tools for committing them to Trial and Adoption...

COMPULSION: looks tempting as a last resort, but should ordinarily be resisted; forcing people's compliance may lead to immediate short-range adoption, but this tends to drop away when the enforcement slacks off.

CONFRONTATION: a high-risk strategy; the odds are that no useful purpose will be served, but if you happen to get lucky, powerful forces come to your support and rapid advancement on all fronts occurs."

These strategies may be adapted for all aspects of innovation and Diagram 7 may be used to good effect for planning and implementing media programmes



STRATEGIES	ADOPTION PHASES				
	Awareness	Interest	Appraisal	Trial	Adoption
1. Talking to: a good multi-purpose device; personal inter-action can impel a teacher through all phases.	✓	✓	✓	✓	✓
2. Asking help: for eager teachers co-operation will serve to promote all phases; others will only benefit in Awareness and Interest.	✓ ✓	✓ ✓	✓	✓	✓
3. Pilot test: to arouse Interest of average teacher; not successful with laggards.	✓				
4. Site visit: for all phases; arouses individual Interest; even lead to Appraisal should teacher visualize application in own classroom.	✓ ✓ ✓	✓ ✓	✓ ✓	✓	✓
5. Printed matter: poor strategy; may arouse Interest.	✓				
6. Presentation: slight progress in Awareness and Interest; reaches large group.	✓ ✓	✓ ✓			
7. Demonstration: extremely effective for already interested teachers; if led by influential teacher many others may be swayed in favour.	✓	✓	✓	✓	✓
8. Workshop: very useful in Trial phase; for those not ready for it, not much use.	✓	✓	✓	✓	
9. Media workshop: extremely effective for Trial and Adoption as teachers become involved in producing media for innovation.	✓	✓	✓	✓	✓
10. Compulsion: looks tempting but avoid; may lead to short term Adoption which fades when pressure is relaxed.					✓ ?
11. Confrontation: risky strategy which serves no purpose; should it succeed, can win wide support and lead to rapid advancement in all areas.	? ✓	? ✓	? ✓	? ✓	? ✓

DIAGRAM 7

PRACTICAL WORK: With your own school in mind, indicate in pencil, opposite the name in the first column, in which phase of adoption you would classify the members of staff, and write in, the strategies you consider appropriate to promote adoption.

	Phases of adoption	Strategies - see Diagram 6 and 7
Principal	Awareness Interest / Appraisal Trial Adoption	Talk to Ask help Visit Demonstration
Deputy principal	Awareness Interest Appraisal Trial Adoption	
Departmental head / Subject head	Awareness Interest Appraisal Trial Adoption	
Media teacher (media centre)	Awareness Interest Appraisal Trial Adoption	
Media-teacher (audio-visual)	Awareness Interest Appraisal Trial Adoption	
Other teachers	Awareness Interest Appraisal Trial Adoption	

10. SUGGESTIONS FOR PLANNING AND IMPLEMENTING MEDIA PROGRAMME IN PRACTICE AS FOLLOW-UP TO COURSE

10.1 Possibilities for general report/introduction:

- Orally to principal/media committee.
- Written to arouse interest of staff.
- Selection of diagrams from course lectures to be shown as transparencies to the staff, e.g. media selection; potential uses of educational media.
- Excerpts from feedback after group discussion during course, to stimulate interest.
- Talking to departmental heads to arouse interest.
- Exhibition of course lectures, supplemented with suitable media stock, etc.

10.2 Suggestions for planning implementation of course contents

10.2.1 Media Committee:

- Should it exist, evaluate composition and functioning, using par 6; start with questionnaires to determine needs.
- Should it not exist, use strategy par 9.2.2 to get to constitution and functions; start with questionnaires to determine needs.

10.2.2 School media policy

- Should the school have one, evaluate according to par 5 and adapt;
- If school lacks one, use guidelines in par 5 to start on a small scale; extend as you make progress.

10.2.3 Media Programme

- If school has one, use every opportunity to include the course contents in it as soon as is feasible.
- If school lacks one, start drawing up a media programme as a means to conveying course contents.
- Determine needs by analysing questionnaires.

10.3 Practical work

- Refer to 10.1 and 10.2 and the contents of the course, and indicate which aspects or plans of action should be given priority in your media programme.
- Remember that more than one plan of action may be included in the media programme for a shorter or longer term.
- Keep in mind the level of the administration of the media centre and the nature of media services either available or to be provided.

Media Programme : Plans of action

1.
2.
3.
4.
5.
6.

11. SOURCE LIST

BESWICK, N.W.& B. 1981 School library media centres in South Africa. Bloemfontein : The University of the Orange Free State

CLOETE, J.J.N. 1980 Inleiding tot die publieke administrasie. Pretoria : Van Schaik

TED / TOD 1984 Manual for general school organisation / Handleiding vir algemene skoolorganisasie. Pretoria : TED / TOD (Internal publication)

UNIVERSITY CONSORTIUM FOR INSTRUCTIONAL DEVELOPMENT AND TECHNOLOGY, 1977 Diffusion Strategies Module. Los Angeles : University of California. UCIDT (not available on loan)